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A Survey of

EXTENT AND COST OF WEED CONTROL and SPECIFIC WEED PROBLEMS

JOINT REPORT

Agricultural Research Service Federal Extension Service

U.S. DEPARTMENT OF AGRICULTURE

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Issued March 1962

A SURVEY OF EXTENT AND COST OF WEED CONTROL AND SPECIFIC WEED PROBLEMS[1]

I. PURPOSE OF SURVEY AND PROCEDURE

Losses caused by weeds in the United States are believed to equal the combined losses from insects and diseases and to rank second only to those caused by soil erosion. Losses from weeds and costs of controlling them on agricultural lands are estimated to be about $3.8 billion each year. The weed control problem presents a major challenge to the most efficient farm operator because of the increasing labor and other production costs that help to reduce his net income. Weeds hinder complete mechanized production of many crops. They lower crop quality and yield and cause many other losses, such as poisoning of livestock, inducing off-flavors in milk, and reducing flow of irrigation and drainage waters.

New and powerful chemicals for weed control are replacing hoe hands, who have sought other jobs, and are replacing or supplementing inefficient cultural methods. The use of herbicides helps the farmer reduce production costs of many crops in spite of higher farming costs. Research and education must speed up their programs to fill farmers' needs for information about improved methods of weed control. This means that sound weed control programs must be developed. To help perfect these programs a questionnaire was sent to State extension specialists engaged in weed control activities. Information requested by the questionnaire included important weeds in each crop, acres treated, treatment costs per acre, effectiveness of available chemicals, the expected trend of chemical weed control by crops, and the need for better chemicals.

When exact information was not available from farmers or other land owners, the specialists--usually in consultation with other research, industry, and extension specialists--made estimates.

From the returned questionnaires, weighted averages were computed by regions and nationally on estimated acreages and costs. The information obtained is given in the following tables. It is hoped the data will be helpful in:

a. Planning research on specific weed problems in particular crops or sites in different regions.
b. Planning research and development programs on new herbicides.
c. Planning long-range basic research that will open new frontiers for practical weed control developments.
d. Predicting problems that may be encountered in recommending herbicides for use by farmers, and
e. Developing educational programs.

[1]The information in this publication was compiled by J. M. Saunders, Federal Extension Service, U. S. Department of Agriculture; and L. L. Danielson, W. B. Ennis, Jr., D. L. Klingman, W. C. Shaw, F. L. Timmons, Crops Research Division, and P. E. Strickler, Farm Economics Research Division, Agricultural Research Service, U. S. Department of Agriculture; in cooperation with specialists and others in the Agricultural Extension Services and Agricultural Experiment Stations of Land-Grant Colleges.

II. CHEMICAL WEED CONTROL ON A NATIONAL BASIS

Chemical weed control is being adopted on an increasing basis on American farms. The data in table 1 show that about 53 million acres were treated with herbicides for weed control in 1959, more than double that treated in 1949. During this same period the number of new organic herbicides available to farmers increased from about 20 to nearly 60. These new chemicals possess various selective properties that make them useful for controlling weeds in many crops and under different soil and climatic conditions.

Specific data are not available on the benefits of using different herbicides on different crops in various geographical areas. However, in 1959, farmers spent over $128 million in chemical weed control that undoubtedly reduced labor needs, improved crop quality and yields, and improved other farming operations. In Mississippi, between 1954 and 1956, the use of herbicides for weed control in cotton reduced labor needs by 16 to 35 man-hours per acre, and for control of winter weeds in spinach resulted in benefits of $162 per acre. The control of big sagebrush with herbicides costing $2.25 to $3.25 per acre gave an annual net saving of $1.68 an acre on Oregon rangelands. The experimental control of barnyard grass in rice by proper use of an herbicide, in 1955-57, resulted in an average net yield increase of $67 per acre in Arkansas. Benefits from the types of chemical weed control listed provide a continuing means for sparking interest in safe and efficient herbicides that will reduce weed losses.

Pre-emergence herbicides were more extensively used than post-emergence herbicides on cotton, soybeans, peanuts, and sugar beets in 1959, whereas post-emergence herbicides were widely used on small grains, corn, rice, and other crops included in the survey (table 1). The average cost

TABLE 1.--Estimated extent and cost of chemical weed control in the United States, and number of States reporting effectiveness, usage trend, and need for better control methods, 1959

Crop	Acreage treated		Combined cost of herbicides and applications[1]		States reporting								
					Effectiveness of herbicides[2]			Herbicide usage trend			Need for better herbicides		
	Pre-emergence	Post-emergence	Pre-emergence	Post-emergence	Good	Fair	Poor	Up	Stationary	Down	Urgent	Some	Little
	1,000 acres	1,000 acres	$1,000	$1,000	No.	No.	No.	No.	No.	No.	No.	No.	No.
Corn	2,235.4	17,816.5	8,226.3	29,753.6	39	28	2	37	1	0	7	27	4
Cotton	1,000.6	552.7	3,221.9	1,406.1	9	10	0	11	2	0	2	11	0
Soybeans	545.5	10.0	2,296.6	17.5	1	12	2	14	1	0	11	4	0
Small grains	-	20,723.3	-	37,094.7	24	11	0	26	9	0	3	22	11
Rice	-	502.0	-	888.5	4	0	0	2	2	0	1	3	0
Peanuts	31.9	3.0	107.2	9.0	0	3	1	2	0	0	2	1	0
Sugar beets	81.6	42.6	427.6	197.2	4	8	3	9	2	0	5	6	0
Sorghum	8.0	2,085.0	48.0	6,463.5	9	5	2	10	4	0	6	6	2
Forage seeds	-	281.8	-	1,868.3	3	7	3	8	2	0	8	4	0
Vegetables	71.9	204.1	582.1	835.6	10	20	1	16	4	0	8	12	0
Fruits and nuts	-	5.4	-	42.8	2	9	0	7	2	0	5	4	0
Strawberries	2.0	3.3	35.2	20.4	0	4	0	3	0	0	1	2	0
Ornamentals	.2	2.2	2.0	43.1	1	6	1	5	1	0	2	4	0
Lawns	2.6	57.3	680.0	809.1	10	9	3	18	1	0	7	10	3
Hay	-	272.4	-	1,691.6	11	6	2	14	4	0	8	9	1
Pastures	30.1	2,370.0	30.1	5,759.1	21	15	1	31	3	0	5	24	5
Rangeland	-	2,011.0	-	6,173.8	6	6	1	10	2	0	3	8	2
Noncrop land	27.2	1,943.5	2,596.2	17,141.7	9	18	0	22	2	0	7	15	2
Totals	4,037.0	48,886.1	18,253.2	110,215.6									

[1]Calculated from average costs incurred by farmers and other land owners in the States reporting.

[2]Totals include reports for both pre- and post-emergence treatments. Therefore, a State may be represented twice in contributing to the totals of judged effectiveness, excepting the figures of "poor" ratings, which represent individual States for one or the other of the treatments.

per acre of pre-emergence herbicides and their application was about twice as much as those of post-emergence treatments. Although available herbicides were effective in controlling weeds in some crops and the usage trend was upward on virtually all crops, most States indicated some or urgent need for better herbicides to use in all crops.

III. AGRONOMIC CROPS

Agronomic crops, not including pastures and rangelands, were grown and harvested on approximately 312 million acres in 1959. In 1954 weed losses in 11 major agronomic crops were estimated at more than $2 billion a year. The losses in millions of dollars were: Corn, 440; sorghum, 115; small grains (wheat, oats, and barley), 600; flax, 45; cotton, 440; soybean, 200; peanuts, 38; sugarcane, 9; sugar beets, 25; tobacco, 175; and forage crops grown for seed production, 16.

The survey data, table 1, show that farmers are rapidly accepting the use of herbicides for weed control in agronomic crops. In 1959, of the total acreage treated for weed control more than 45 million acres were cultivated agronomic crops, including small grains. The treated acreage is about 13 percent of the total harvested. In 87 percent of agronomic crops planted in 1959, weeds were controlled by cultural, ecological, mechanical, and other nonchemical methods.

In recent years increased mechanized crop production and shortage of labor has accented weed problems that cause tremendous losses in crop yields and quality each year. The use of herbicides alone, or combined with other methods, holds unusual promise for revolutionizing crop production through increased mechanization, lower production costs, better crop quality, and higher yields. Research results on weed control in agronomic crops indicate that effective chemical methods will permit closer spaced rows, higher plant populations per acre, and better land and equipment utilization.

A. Corn. (See also Sweet Corn, p. 31.) Of the 74 million acres of corn planted in 1959, over 20 million acres were treated with herbicides for weed control at a total cost of nearly 38 million (tables 1 and 2). Pre-emergence treatments for weed control in corn averaged $3.68 per acre, and post-emergence treatments averaged $1.67. Farmers applied the herbicides on 82 percent of the total treated acreage with their own equipment; custom operators treated the remaining 18 percent.

Fifteen out of 32 States reporting on the present effectiveness of herbicides in corn indicated that the pre-emergence ones gave only fair results; another 15 of these States, however, indicated that the results were good. Thirty-seven States reported on the effectiveness of the present post-emergence treatments; about twice as many of these States reported them good as reported them fair. Thirty-seven States also reported an upward trend in herbicide usage for corn. Of 34 reporting a conspicuous need for improved chemical control methods, 7 indicated the need was urgent.

The degree of infestation, extent of damage, and infestation trend of the most important weed species in corn are given by geographical regions in table 3. Foxtail was among the most serious weeds in the north-central region; quackgrass in the Northeast; and crabgrass, Johnsongrass, morning-glory, and cocklebur in the South.

B. Cotton. Of the total acreage planted in cotton in 1959, 1.6 million acres were treated with herbicides for weed control at a total cost of $4.6 million (tables 1 and 4). Cost of pre-emergence applications averaged $3.22 per acre, while post-emergence treatments averaged $2.69 per acre. Farmers treated 92 percent of the total acreage with their own equipment, while custom operators treated 8 percent.

Seven out of 11 States reported that the present pre-emergence herbicides for weed control in cotton gave only fair results, while 4 States reported that present methods gave good results. Eleven States reported that the use of herbicides for weed control

in cotton was increasing. Eleven also reported some need for improved weed control methods in cotton, while 2 reported an urgent need.

The degree of infestation, extent of damage, and infestation trend of the important weeds in cotton are given in table 5.

C. Soybeans. Of the total acreage planted in soybeans, more than one-half million acres were treated with pre-emergence herbicides in 1959 at a cost of more than $2.3 million (tables 1 and 6). Herbicides were applied as post-emergence treatments on 10,000 acres. The pre-emergence treatments cost $4.21 per acre; post-emergence treatments averaged $1.75 per acre. Practically all treatment was done by farmers themselves.

Twelve out of 15 States reported that present pre-emergence herbicides for weed control gave only fair results and 2 rated them poor; only 1 State considered them good. Fourteen of these 15 States indicated that the use of herbicides for weed control is increasing. Eleven of the 15 States reported an urgent need for improved chemical weed control methods; 4 States reported some need for improved methods.

The degree of infestation, extent of damage, and infestation trend of important weeds in soybeans in the various production regions are given in table 7. Foxtail, pigweed, crabgrass, barnyard grass, cocklebur, lambsquarters, ragweed, smartweed, Johnsongrass, quackgrass, nutsedge, Jimsonweed, and morning-glory appear to be serious weeds in all of the soybean production regions. Other species appear to be more serious in certain regions than in the others. Weeds appear to be most serious in the north-central and southern production regions.

D. Small Grains. Of about 111 million acres of wheat, oats, and barley planted in 1959, post-emergence herbicides were used to control weeds in 20.7 million acres at a cost of more than $37 million (tables 1 and 8). Practically no herbicides used for weed control were applied as pre-emergence treatments. The average cost of the post-emergence chemical weed control was $1.79 per acre. Farmers purchased the herbicides and used their own equipment on 75 percent of the acreage treated by both methods, while custom operators sprayed 25 percent.

Twenty-four States out of 35 reported that post-emergence herbicides used in small grains gave good results, while 11 States reported only fair results. Twenty-six of these States reported that the use of herbicides for weed control was increasing, while 9 States reported their use was stationary. Thirty-six States indicated a need for improved methods, including 3 indicating the need was urgent; 11 States felt the present herbicides are only slightly inadequate.

The most important weeds in small grains are presented by region in table 9. The seriousness of various weeds in small grains varied greatly according to region. For example, the following were serious in the northeastern region: Wild mustard, quackgrass, wild onion and wild garlic, lambsquarters, and white cockle, among others. In the north-central region bindweed, Canada-thistle, Johnsongrass, lambsquarters, pigweed, quackgrass, ragweed, smartweed, wild onion and wild garlic, weed bromegrasses, and wild mustard were the more serious weeds. In the southern region, wild onion and wild garlic, curly dock, wild mustard, blessed thistle, weed bromegrasses, and darnel were the more serious. The Western States reported wild oats, corn gromwell, bindweed, Canada-thistle, weed bromegrasses, knawel, cow cockle, Russian thistle, kochia, and lambsquarters as the more serious.

E. Rice. Data on weed control practices in rice were obtained from four States--Arkansas, Louisiana, Mississippi, and Texas. In the States reporting, more than 500,000 acres of rice were treated with herbicides as post-emergence sprays at a cost of close to $900,000 (tables 1 and 10). The average cost of this chemical weed control was $1.77 per acre. Thirteen percent of the acreage was treated by farmers with their own equipment, while custom operators treated 87 percent of the total.

The States reported that post-emergence herbicides gave good results. Two States reported that the use of herbicides for weed control was stationary, while 2 others reported that their use was increasing. One State reported an urgent need for better herbicides for weed control in rice, while 3 indicated some need.

The degree of infestation, extent of damage, and infestation trend of important weeds

in rice in the southern region are shown in table 11. All States rated barnyard grass the most serious weed. Aquatic species also were rated serious in rice production.

F. Peanuts. Five southern States reported that approximately 32,000 acres of peanuts were treated with pre-emergence herbicides for weed control in 1959 at a cost of $107,000 (tables 1 and 12). Post-emergence treatments have not been used except on a limited scale. The average cost of pre-emergence treatments was $3.36 per acre; post-emergence treatments averaged $3.00 per acre. Practically all of the total acreage was treated by farmers using their own equipment.

Two of 3 States reported that pre-emergence herbicides gave only fair results, and 1 reported poor results. Two States indicated that the herbicide usage trend in peanuts was up, and 2 out of 3 States reported that the need for better herbicides was urgent.

Serious weeds in peanut production included crabgrass, nutsedge, purslane, goosegrass, Bermudagrass, sandbur, pigweed, cocklebur, and morning-glory (table 13). The infestations of these weeds varied from moderate to heavy, and they caused moderate to heavy damage. An increasing infestation trend for the first six of these species was reported.

G. Sugar Beets. Approximately 82,000 acres of sugar beets were treated with pre-emergence herbicides, while approximately 43 thousand acres received post-emergence treatments--at a total cost of more than $0.6 million (tables 1 and 14). The average cost of pre-emergence treatments was $5.24 per acre, while post-emergence treatments averaged $4.63 per acre. Farmers treated 94 percent of the total acreage, while custom operators treated 6 percent.

Three States rated the effectiveness of the pre-emergence herbicides poor, 4 States rated them fair, and 3 felt the pre-emergence herbicides were giving good results. Only one State gave a good rating to post-emergence treatments. Nine States indicated the herbicide usage trend in sugar beets was up. Five States reported an urgent need for better herbicides; 6 reported some need.

The important weeds in sugar beets in the north-central and western regions are shown in table 15. Foxtail, barnyard grass, crabgrass, cocklebur, lambsquarters, pigweed, wild oats, sowthistle, wild mustard, ragweed, and smartweed were rated as serious in the north-central region. Some of these same weeds plus Canada-thistle, bindweed, quackgrass, and curly dock were serious in the western region.

H. Sugarcane. No reports were received on the extent and cost of chemical weed control in sugarcane. Hawaii was not included in the survey, but information otherwise obtained shows that all Hawaiian sugarcane acreage is treated one or more times with herbicides during the life cycle of the crop. Each year about 100,000 acres of sugarcane are treated 4 or 5 times for weed control, amounting to an accumulative acreage of one-half million acres treated per year. The cost of chemical weed control in sugarcane in Hawaii amounts to about $7 million annually.

Weeds that are serious in sugarcane production in Louisiana are shown in table 16.

I. Sorghum. More than 2 million acres of grain sorghum were treated with herbicides as post-emergence sprays in 1959, while 8,000 acres received pre-emergence treatments; the total cost was more than $6\frac{1}{2}$ million (tables 1 and 17). The average cost of pre-emergence treatments was $6.00 per acre; the post-emergence treatments averaged $3.10 per acre. There was considerable variation in the cost per acre reported for post-emergence treatments, ranging from as low as 40¢ per acre to $4. Forty percent of the acreage treated by both methods was sprayed by farmers using their own equipment, while 60 percent was treated by custom operators.

The herbicides ranged in judged effectiveness from poor to good. Ten of 14 States reported that the herbicide usage trend was up. Six of the States indicated an urgent need for better chemical methods of controlling weeds in grain sorghum and 6 some need; only 2 reported little need.

The degree of infestation, extent of damage, and infestation trend of the important weeds are shown in table 18.

J. Forage Crops Grown for Seed. Two hundred and eighty-two thousand acres of forage crops grown for seed production

were treated with post-emergence herbicides in 1959 at a cost of over 1-3/4 million dollars (tables 1 and 19). Farmers have not begun to use pre-emergence treatments extensively for weed control in these crops. The average cost of the post-emergence treatments was $6.63 per acre. The combined acreage for the two types of treatment was treated by farmers and by custom operators in the amounts of 80 and 20 percent, respectively.

Three States rated the effectiveness of the post-emergence herbicides as poor and 6 as fair; only 3 called them good. Eight States reported that the herbicide usage trend was up in forage crops grown for seed. Eight of 12 States reported an urgent need, 4 some need, for improved chemicals to control weeds in forage-seed crops.

Important weeds in forage seed crops are indicated in table 20.

K. Tobacco. Important weeds in tobacco plant beds in Georgia and South Carolina are indicated in table 21.

Georgia reported the weeds important in field plantings of tobacco to be purslane--which was of moderate infestation level and moderately damaging, but was not increasing--and barnyard grass, crabgrass, and sandbur--which, although on the increase, were only of slight infestation level and only slightly damaging (table 21, A).

Throughout the survey on weed control in agronomic crops the reports on the degree of effectiveness of the herbicides and the reported need for better ones were closely correlated. For example, when the majority of States rated the effectiveness of the herbicides fair-to-poor the need for better herbicides was usually rated some-to-urgent (table 14).

TABLE 2.--Corn: Estimated extent and cost of chemical weed control, and States reporting effectiveness, usage trend, and need for better control methods, United States, 1959

State and region	Acreage treated		Average cost per acre[1]		Acreage treated by--		Effectiveness of herbicides		Herbicide usage trend[2]	Need for better herbicides
	Pre-emergence	Post-emergence	Pre-emergence	Post-emergence	Farmers	Custom operators	Pre-emergence	Post-emergence		
	1,000 acres	1,000 acres	Dollars	Dollars	Pct.	Pct.				
Connecticut	10	14	4.00	4.00	35	65	Good	Fair	Up	Little
Delaware	16	110	-	-	-	-	-	-	-	-
Maine	1.5	1	5.00	3.00	85	15	Good	Good	Sta.	Little
Maryland	75	200	2.25	2.00	75	25	Fair	Good	Up	Little
Massachusetts	2	6	5.00	3.00	85	15	Good	Fair	Up	Some
New Hampshire	5	2	-	-	40	60	Good	Fair	Up	Some
New Jersey										
New York										
Pennsylvania	270	630	3.50	2.75	90	10	Fair	Good	Up	Some
Rhode Island	.1	1	-	-	85	15	Good	Good	Up	Some
Vermont	2	8	3.00	3.00	70	30	Good	Good	Up	Urgent
West Virginia	4	20	6.00	6.00	80	20	Good	Good	Up	Some
Northeastern	385.6	992	3.30	2.68	85	15	7-Good 2-Fair	6-Good 3-Fair	8-Up 1-Sta.	1-Urgent 5-Some 3-Little
Illinois	600	4,000	4.00	1.25	85	15	Fair	Good	Up	Some
Indiana	220	2,400	5.50	1.50	90	10	Good	Fair	Up	Some
Iowa	250	2,500	3.00	1.50	85	15	Fair	Good	Up	Some
Kansas	-	1,006	-	3.00	75	25	-	Good	Up	Some
Michigan	200	800	2.00	1.50	50	50	Good	Fair	Up	Some
Minnesota	60	1,700	6.00	2.00	75	25	Fair	Fair	Up	Some
Missouri	125	825	2.25	1.00	85	15	Good	Good	Up	Some
Nebraska	30	700	4.50	1.75	70	30	Poor	Good	Up	Urgent
North Dakota	2	108	4.50	1.50	99	1	Poor	Good	Up	Urgent
Ohio										
South Dakota	15	450	-	1.40	90	10	-	Good	Up	Some
Wisconsin	150	450	3.50	1.50	80	20	Fair	Good	Up	Some
North Central	1,652	14,939	3.71	1.57	81	19	3-Good 4-Fair 2-Poor	8-Good 3-Fair	11-Up	2-Urgent 9-Some
Alabama	1.4	9	7.50	1.00	90	10	Fair	Good	Up	Urgent
Arkansas	14	29	3.50	2.50	100	0	Good	Good	Up	Little
Florida	.5	-	6.00	-	100	0	Fair	-	Up	Some
Georgia	5	5	3.00	2.00	90	10	Fair	Good	Up	Some
Kentucky	20	165	5.50	2.00	95	5	Good	Fair	Up	Some
Louisiana	5	25	4.00	1.25	95	5	Good	Fair	Up	Urgent
Mississippi	12	100	4.00	1.00	90	10	Good	Good	Up	Some
North Carolina	50	1,000	-	-	95	5	Fair	Fair	Up	Some
Oklahoma										
South Carolina	25	150	-	-	-	-	-	-	-	-
Tennessee	.4	7.5	3.00	1.50	70	30	Good	Good	Up	Some
Texas	1	10	6.00	1.00	50	50	Fair	Good	Up	Urgent
Virginia	44	174	4.25	3.00	80	20	Fair	Fair	Up	Some
Southern	178.3	1,674.5	4.35	2.09	92	8	5-Good 6-Fair	6-Good 4-Fair	11-Up	3-Urgent 7-Some 1-Little

[1] Represents cost of herbicide custom applications and/or cost of farmer-applied herbicides.
[2] "Sta." refers to a report of stationary.

TABLE 2.--Corn: Estimated extent and cost of chemical weed control, and States reporting effectiveness, usage trend, and need for better control methods, United States, 1959--Continued

State and region	Acreage treated		Average cost per acre[1]		Acreage treated by--		Effectiveness of herbicides		Herbicide usage trend[2]	Need for better herbicides
	Pre-emergence	Post-emergence	Pre-emergence	Post-emergence	Farmers	Custom operators	Pre-emergence	Post-emergence		
	1,000 acres	1,000 acres	Dollars	Dollars	Pct.	Pct.				
Arizona										
California										
Colorado	10	145	7.00	3.00	75	25	Fair	Good	Up	Some
Idaho	-	5	-	2.70	90	10	-	Good	Up	Some
Montana	1	10	3.00	1.50	95	5	Fair	Fair	Up	Some
Nevada										
New Mexico	-	8	-	4.00	90	10	-	Good	Up	Some
Oregon	8	25	-	5.00	75	25	-	Good	Up	Some
Utah	.5	15	-	3.00	90	10	Fair	Fair	Up	Urgent
Washington										
Wyoming	-	3	-	2.00	100	0	-	Fair	Up	Some
Western	19.5	211	6.64	3.18	78	22	3-Fair	4-Good 3-Fair	7-Up	1-Urgent 6-Some
UNITED STATES	2,235.4	17,816.5	3.68	1.67	82	18	15-Good 15-Fair 2-Poor	24-Good 13-Fair	37-Up 1-Sta.	7-Urgent 27-Some 4-Little

[1] Represents cost of herbicide custom applications and/or cost of farmer-applied herbicides.
[2] "Sta." refers to a report of stationary.

TABLE 3.--Corn: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Northeastern:[1]										
Quackgrass	8	1	2	5	-	3	5	2	6	-
Pigweed	8	-	4	4	-	2	6	4	2	2
Lambsquarters	8	-	4	4	-	4	5	5	2	1
Foxtail	6	-	3	3	-	4	2	2	4	-
Ragweed	7	-	5	2	-	3	4	3	3	1
Common morning-glory	3	1	1	1	-	3	-	1	1	1
Barnyard grass	8	4	3	1	3	5	-	5	3	-
Crabgrass	8	5	2	1	5	3	-	5	3	-
Nutsedge	5	2	2	1	-	3	2	2	3	1
Wild mustard	5	2	2	1	2	2	1	4	1	-
Johnsongrass	3	2	-	1	-	2	1	1	2	-
Smartweed	5	1	4	-	1	3	1	3	2	-
Canada thistle	4	1	3	-	1	1	2	2	2	-
Field bindweed	7	6	1	-	4	3	-	7	-	-
Purslane	3	2	1	-	2	-	1	3	-	-
Goosegrass	2	1	1	-	1	1	-	1	1	-
Bermudagrass	1	-	1	-	1	-	-	-	1	-
Horsenettle, Carolina	1	-	1	-	-	1	-	-	1	-
Wild onion and wild garlic	2	2	-	-	2	-	-	2	-	-
Wild cucumber	1	1	-	-	-	-	1	1	-	-
Galinsoga	1	1	-	-	1	-	-	-	1	-
Chickweed	1	1	-	-	1	-	-	1	-	-
Cocklebur	1	1	-	-	1	-	-	1	-	-
North Central:[2]										
Foxtail	12	-	3	9	-	6	6	3	8	1
Pigweed	11	1	8	2	2	9	-	10	1	-
Barnyard grass	11	2	7	2	2	9	-	7	4	-
Crabgrass	8	-	6	2	2	6	-	4	3	-
Canada thistle	8	2	4	2	2	3	3	6	2	-
Cocklebur	10	3	5	2	3	5	2	7	-	3
Quackgrass	9	2	5	2	3	2	4	7	2	-
Johnsongrass	7	3	2	2	2	-	5	2	3	2
Smartweed	11	4	6	1	3	4	4	8	3	-
Lambsquarters	11	5	5	1	7	4	-	10	-	1
Sunflower	5	-	4	1	1	2	2	3	1	1
Wild mustard	4	1	2	1	1	3	-	2	-	2
Nimblewill	2	1	-	1	1	-	1	-	2	-
Cheat	1	-	-	1	-	-	1	-	1	-
Wild oat	2	1	-	1	1	-	1	1	-	1
Field bindweed	11	3	8	-	2	6	3	5	3	3
Ragweed	10	4	6	-	4	6	-	8	1	1
Common morning-glory	9	5	4	-	3	6	-	6	-	3
Velvetleaf	7	3	4	-	2	4	1	5	2	-
Venice mallow	2	-	2	-	1	1	-	2	-	-
Milkweed	4	2	2	-	1	2	1	-	4	-
Jimsonweed	2	-	2	-	-	2	-	2	-	-
Curly dock	1	1	-	-	1	-	-	1	-	-
Nutsedge	7	6	1	-	5	1	1	-	7	-
Weedy bromegrass	2	1	1	-	1	1	-	2	-	-
Horsenettle, Carolina	2	1	1	-	2	-	-	-	2	-
Indian hemp	1	-	1	-	-	1	-	-	1	-
Wild black amber cane	2	1	1	-	-	-	2	-	2	-
Purslane	2	2	-	-	2	-	-	2	-	-
Goosegrass	1	1	-	-	1	-	-	1	-	-
Henbit	1	1	-	-	1	-	-	1	-	-
Hemp	1	1	-	-	1	-	-	1	-	-
Bigroot morning-glory	1	1	-	-	-	1	-	-	1	-
Sowthistle	1	1	-	-	1	-	-	-	1	-
Swamp smartweed	1	1	-	-	-	-	1	1	-	-

[1] The 8 States reporting were: Connecticut, Maryland, Massachusetts, New Hampshire, Pennsylvania, Rhode Island, Vermont, and West Virginia.

[2] The 12 States reporting were: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. One State made no report on the infestation trend.

TABLE 3.--Corn: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959--Continued

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
North Central[2]--Con.										
Marshelder	1	1	-	-	1	-	-	1	-	-
Butterprint	1	-	1	-	-	1	-	-	1	-
Southern:[3]										
Crabgrass	9	-	4	5	3	1	5	6	3	-
Johnsongrass	11	3	3	5	3	3	5	2	7	1
Common morning-glory	10	2	6	2	2	8	-	5	4	1
Cocklebur	11	1	8	2	3	6	2	6	4	-
Pigweed	10	5	2	3	6	2	2	7	2	-
Ragweed	7	4	2	1	4	3	-	7	-	-
Smartweed	7	4	2	1	5	2	-	7	-	-
Goosegrass	7	4	1	2	3	4	-	6	-	-
Purslane	2	1	-	1	1	1	-	2	-	-
Bermudagrass	6	2	4	-	4	2	-	4	1	-
Nutsedge	6	3	3	-	4	2	-	2	3	-
Foxtail	5	1	4	-	2	2	1	2	2	-
Coffeeweed	2	-	2	-	-	2	-	1	1	-
Barnyard grass	4	2	2	-	2	2	-	1	2	-
Lambsquarters	5	3	2	-	3	2	-	4	-	-
Quackgrass	2	1	1	-	1	-	1	-	1	-
Sandbur	1	-	1	-	-	1	-	-	1	-
Citrons	1	-	1	-	-	1	-	1	-	-
Field bindweed	1	-	1	-	-	-	1	-	1	-
Trumpetvine	1	-	1	-	1	-	-	-	1	-
Bigroot morning-glory	1	-	1	-	1	-	-	-	1	-
Red vine	1	-	1	-	1	-	-	-	1	-
Brachiaria	1	-	1	-	-	1	-	-	1	-
Wild cucumber	1	-	1	-	-	1	-	1	-	-
Wild sorghum	1	-	1	-	-	-	1	-	1	-
Weed bromegrass	1	1	-	-	1	-	-	1	-	-
Nightshade	1	1	-	-	1	-	-	1	-	-
Witchgrass	1	1	-	-	1	-	-	-	-	-
Bitter sneezeweed	1	1	-	-	1	-	-	1	-	-
Jimsonweed	1	1	-	-	1	-	-	1	-	-
Western:[4]										
Pigweed	3	1	-	2	1	2	-	3	-	-
Barnyard grass	3	2	-	1	2	1	-	1	2	-
Foxtail	3	1	1	1	1	2	-	1	2	-
Johnsongrass	3	2	-	1	2	1	-	3	-	-
Field bindweed	3	1	2	-	1	2	-	-	2	1
Lambsquarters	2	1	1	-	1	1	-	2	-	-
Wild oat	2	1	1	-	1	1	-	1	-	1
Quackgrass	1	-	1	-	-	1	-	1	-	-
Wild mustard	1	-	1	-	-	1	-	1	-	-
Canada-thistle	2	2	-	-	2	-	-	-	1	1
Ragweed	2	2	-	-	2	-	-	2	-	-
Povertyweed	2	2	-	-	2	-	-	2	-	-
Bermudagrass	1	1	-	-	1	-	-	1	-	-
Cocklebur	2	2	-	-	1	1	-	1	-	1
Nutsedge	1	1	-	-	1	-	-	1	-	-
Purslane	1	1	-	-	1	-	-	1	-	-
Hairy whitetop	1	1	-	-	1	-	-	1	-	-
Russian knapweed	1	1	-	-	1	-	-	1	-	-
Common morning-glory	1	1	-	-	-	1	-	1	-	-

[2] The 12 States reporting were: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. One State made no report on the infestation trend.

[3] The 11 States reporting were: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, North Carolina, South Carolina, Tennessee, Texas, and Virginia. Some States made no report on the infestation trend.

[4] The 3 States reporting were: Colorado, New Mexico, and Utah.

TABLE 4.--Cotton: Estimated extent and cost of chemical weed control, and States reporting effectiveness, usage trend, and need for better control methods, United States, 1959

State and region	Acreage treated		Average cost per acre[1]		Acreage treated by--		Effectiveness of herbicides		Herbicide usage trend[2]	Need for better herbicides
	Pre-emergence	Post-emergence	Pre-emergence	Post-emergence	Farmers	Custom operators	Pre-emergence	Post-emergence		
	1,000 acres	1,000 acres	Dollars	Dollars	Pct.	Pct.				
Missouri	25	-	5.25	-	90	10	Good	-	Up	Some
North Central	25	-	5.25	-	90	10	1-Good	-	1-Up	1-Some
Alabama	32	1.7	6.00	3.00	95	5	Fair	Fair	Up	Some
Arkansas	287	176	3.00	3.00	97	3	Fair	Good	Up	Some
Florida										
Georgia	20	5	3.00	2.00	80	20	Fair	Fair	Up	Some
Kentucky										
Louisiana	200	-	-	-	95	5	Good	-	Up	Some
Mississippi	397	10	3.00	1.25	90	10	Fair	Fair	Up	Urgent
North Carolina	5	-	-	-	100	0	Fair	-	Up	Some
Oklahoma										
South Carolina	30	75	3.50	-	100	0	Good	-	Up	Some
Tennessee	2.5	2	3.50	3.50	90	10	Good	Good	Up	Some
Texas	2	223	4.00	1.50	95	5	Fair	Good	Up	Urgent
Virginia	.1	-	5.00	-	100	0	Fair	-	Sta.	Some
Southern	975.6	492.7	3.15	2.15	94	6	3-Good 7-Fair	3-Good 3-Fair	9-Up 1-Sta.	2-Urgent 8-Some
Arizona	-	25	-	7.00	70	30	-	Good	Sta.	Some
California										
Nevada										
New Mexico	-	35	-	6.00	30	70	-	Good	Up	Some
Western	-	60	-	6.42	47	53	-	2-Good	1-Up 1-Sta.	2-Some
UNITED STATES	1,000.6	552.7	3.22	2.69	92	8	4-Good 7-Fair	5-Good 3-Fair	11-Up 2-Sta.	2-Urgent 11-Some

[1] Represents cost of herbicide custom applications and/or cost of farmer-applied herbicides.
[2] "Sta." refers to a report of stationary.

TABLE 5.--Cotton: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
North Central:[1]										
Morning-glory--	1	-	1	-	-	1	-	1	-	-
Bermudagrass---	1	-	1	-	-	1	-	-	1	-
Foxtail--------	1	-	1	-	-	1	-	-	1	-
Johnsongrass---	1	-	1	-	-	1	-	-	1	-
Smartweed------	1	-	1	-	-	1	-	-	1	-
Crabgrass------	1	1	-	-	1	-	-	1	-	-
Cocklebur------	1	1	-	-	1	-	-	1	-	-
Ragweed--------	1	1	-	-	1	-	-	1	-	-
Southern:[2]										
Crabgrass------	8	-	1	7	-	2	6	4	3	-
Johnsongrass---	8	2	3	3	1	3	4	3	4	-
Goosegrass-----	7	2	3	2	4	3	-	3	2	-
Common morning-glory--------	6	1	4	1	-	4	2	4	1	-
Barnyard grass-	3	2	-	1	2	-	1	1	1	-
Nutsedge-------	7	2	4	1	3	2	2	4	2	-
Pigweed--------	7	1	5	1	3	4	-	5	1	-
Trumpetvine----	1	-	-	1	-	-	1	-	1	-
Red vine-------	1	-	-	1	-	-	1	-	1	-
Bermudagrass---	8	3	5	-	4	3	1	4	2	1
Cocklebur------	8	4	4	-	4	4	-	5	1	1
Foxtail--------	5	2	3	-	3	2	-	3	1	-
Lambsquarters--	3	1	2	-	2	1	-	1	1	-
Ragweed--------	6	4	2	-	5	1	-	5	-	-
Smartweed------	4	3	1	-	3	1	-	2	1	-
Purslane-------	4	2	2	-	2	2	-	4	-	-
Wild mustard---	1	-	1	-	-	1	-	1	-	-
Stinkgrass-----	1	-	1	-	1	-	-	1	-	-
Nightshade-----	2	1	1	-	2	-	-	1	1	-
Sandbur--------	2	1	1	-	1	1	-	-	2	-
Coffeeweed-----	1	-	1	-	-	1	-	1	-	-
Chickweed------	1	1	-	-	1	-	-	1	-	-
Weed bromegrass---	1	1	-	-	1	-	-	1	-	-
Bigroot morning-glory----	1	1	-	-	1	-	-	-	1	-
Quackgrass-----	1	1	-	-	1	-	-	1	-	-
Henbit---------	2	1	1	-	2	-	-	2	-	-
Western:[3]										
Johnsongrass---	2	-	1	1	-	1	1	1	-	1
Nutsedge-------	2	-	1	1	-	2	-	2	-	-
Pigweed--------	2	-	1	1	-	2	-	1	-	1
Dogfennel------	1	-	-	1	-	-	1	1	-	-
Morning-glory--	2	-	2	-	-	1	1	1	-	1
Field bindweed-	2	1	1	-	1	1	-	1	1	-
Bermudagrass---	1	-	1	-	-	1	-	-	-	1
Cogswellia-----	1	-	1	-	-	1	-	1	-	-
Cocklebur------	1	-	1	-	-	1	-	-	-	1
Wild buckwheat-	1	-	1	-	-	1	-	1	-	-
Witchgrass-----	1	-	1	-	-	1	-	-	-	1
Bedstraw-------	1	-	1	-	-	1	-	1	-	-
Prickly lettuce	1	-	1	-	-	1	-	1	-	-
Cowcockle------	1	-	1	-	-	1	-	1	-	-
Sandbur--------	1	1	-	-	-	-	1	1	-	-
Barnyard grass-	1	1	-	-	1	-	-	1	-	-

[1] The State reporting was Missouri.

[2] The 8 States reporting were: Alabama, Arkansas, Georgia, Louisiana, North Carolina, South Carolina, Tennessee, and Texas. One State made no report on the infestation trend.

[3] The 2 States reporting were: Arizona and New Mexico.

TABLE 6.--Soybeans: Estimated extent and cost of chemical weed control, and States reporting effectiveness, usage trend, and need for better control methods, United States, 1959

State and region	Acreage treated		Average cost per acre[1]		Acreage treated by--		Effectiveness on herbicides		Herbicide usage trend[2]	Need for better herbicides
	Pre-emergence	Post-emergence	Pre-emergence	Post-emergence	Farmers	Custom operators	Pre-emergence	Post-emergence		
	1,000 acres	1,000 acres	Dollars	Dollars	Pct.	Pct.				
Maryland	5	-	4.00	-	90	10	Fair	-	Up	Urgent
Northeastern	5	-	4.00	-	90	10	1-Fair	-	1-Up	1-Urgent
Illinois	150	-	4.00	-	95	5	Fair	-	Up	Urgent
Indiana	66	-	5.00	-	-	-	Fair	-	Up	Urgent
Iowa	250	-	4.00	-	100	0	Fair	-	Up	Some
Kansas										
Michigan	2	-	6.00	-	50	50	Fair	-	Sta.	Urgent
Minnesota	1.2	-	6.00	-	100	0	Fair	-	Up	Urgent
Missouri	20	-	5.50	-	100	0	Fair	-	Up	Urgent
Nebraska	12	-	4.50	-	100	0	Fair	-	Up	Some
North Dakota	.4	-	4.00	-	100	0	Poor	-	Up	Urgent
Ohio										
South Dakota										
Wisconsin	1	-	5.00	-	60	40	Fair	-	Up	Urgent
North Central	502.6	-	4.22	-	98	2	8-Fair 1-Poor	-	8-Up 1-Sta.	7-Urgent 2-Some
Alabama										
Arkansas	20	-	3.50	-	100	0	Fair	-	Up	Urgent
Florida	.2	-	5.00	-	100	0	Fair	-	Up	Some
Georgia										
Kentucky	10	10	5.50	1.75	95	5	Fair	-	Up	Urgent
Louisiana										
Mississippi										
North Carolina										
Oklahoma										
South Carolina	5	-	3.00	-	100	0	Good	-	Up	Some
Tennessee										
Texas										
Virginia	2.7	-	6.00	-	95	5	Poor	-	Up	Urgent
Southern	37.9	10	4.15	1.75	98	2	1-Good 3-Fair 1-Poor	-	5-Up	3-Urgent 2-Some
Western	(No reports received from the Western States.)									
UNITED STATES	545.5	10	4.21	1.75	98	2	1-Good 12-Fair 2-Poor	-	14-Up 1-Sta.	11-Urgent 4-Some

[1]Represents cost of herbicide custom applications and/or costs of farmer-applied herbicides.
[2]"Sta." refers to a report of stationary.

TABLE 7.--Soybeans: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959

Weed by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Northeastern:[1]										
Lambsquarters	2	-	1	1	-	2	-	-	2	-
Pigweed	2	-	1	1	-	1	1	-	2	-
Foxtail	2	1	-	1	-	1	1	-	2	-
Crabgrass	1	-	-	1	-	1	-	1	-	-
Jimsonweed	1	-	-	1	-	-	1	-	1	-
Common morning-glory	2	1	-	1	-	-	2	1	1	-
Smartweed	2	-	2	-	-	2	-	1	1	-
Nutsedge	2	1	1	-	-	1	1	1	1	-
Barnyard grass	1	-	1	-	-	1	-	-	1	-
Canada-thistle	1	-	1	-	-	1	-	-	1	-
Johnsongrass	1	-	1	-	-	-	1	-	1	-
Quackgrass	1	-	1	-	-	-	1	-	1	-
Ragweed	1	-	1	-	-	1	-	-	1	-
Wild mustard	1	-	1	-	-	1	-	-	1	-
Field bindweed	1	1	-	-	-	1	-	1	-	-
Goosegrass	1	1	-	-	-	1	-	1	-	-
Purslane	1	1	-	-	1	-	-	1	-	-
North Central:[2]										
Foxtail	12	1	4	7	2	4	6	4	7	1
Pigweed	12	1	9	2	3	5	4	9	3	-
Crabgrass	8	1	5	2	2	5	1	5	2	1
Barnyard grass	12	2	9	1	1	11	-	8	4	-
Cocklebur	10	3	6	1	2	6	2	7	1	2
Lambsquarters	10	1	8	1	4	5	1	10	-	-
Ragweed	10	3	6	1	3	6	1	9	1	-
Smartweed	11	4	5	2	2	6	3	8	3	-
Johnsongrass	6	3	1	2	2	-	4	-	6	-
Common morning-glory	8	4	3	1	2	5	1	5	-	2
Canada-thistle	7	2	4	1	1	5	1	5	2	-
Sunflower	2	1	-	1	-	1	1	2	-	-
Quackgrass	7	3	2	2	2	2	3	6	1	-
Wild oat	1	-	-	1	-	-	1	-	1	-
Cheat	1	-	-	1	-	-	1	-	1	-
Velvetleaf	6	3	3	-	2	2	2	5	1	-
Field bindweed	8	4	4	-	1	5	2	5	1	1
Wild mustard	3	-	3	-	-	2	1	2	-	1
Milkweed	2	-	2	-	-	2	-	-	2	-
Jimsonweed	2	-	2	-	1	1	-	2	-	-
Kochia	2	-	2	-	1	1	-	1	1	-
Horsenettle, Carolina	2	1	1	-	1	1	-	1	1	-
Purslane	2	1	1	-	2	-	-	1	1	-
Weed bromegrass	1	-	1	-	-	1	-	1	-	-
Nutsedge	5	5	-	-	3	1	1	1	4	-
Nimblewill	2	2	-	-	2	-	-	-	2	-
Sowthistle	2	2	-	-	2	-	-	1	1	-
Goosegrass	2	1	1	-	2	-	-	1	1	-
Bermudagrass	1	1	-	-	1	-	-	-	1	-
Curly dock	2	2	-	-	2	-	-	1	-	-
Dodder	1	1	-	-	1	-	-	1	-	-
Indian hemp	1	1	-	-	1	-	-	-	1	-
Wild cane	1	1	-	-	-	-	1	-	1	-
Wild buckwheat	1	1	-	-	1	-	-	1	-	-
Bigroot morning-glory	1	1	-	-	-	1	-	-	1	-
Marshelder	1	1	-	-	1	-	-	1	-	-

[1] The 2 States reporting were: Maryland and Pennsylvania.

[2] The 12 States reporting were: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

TABLE 7.--Soybeans: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959 --Continued

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Southern:[3]										
Johnsongrass----------	7	2	1	4	2	2	3	1		-
Crabgrass----------	6	1	1	4	1	2	3	1	5	-
Cocklebur----------	6	1	2	3	1	3	2	3	3	-
Foxtail----------	3	1	1	1	1	1	1	1	2	-
Pigweed----------	7	2	4	1	3	3	1	5	2	-
Smartweed----------	5	3	1	1	3	2	-	3	2	-
Wild sorghum----------	1	-	-	1	-	-	1	-	1	-
Annual morning-glory--	5	2	3	-	1	3	1	1	4	-
Goosegrass----------	4	3	1	-	3	1	-	4	-	-
Lambsquarters---------	4	3	1	-	3	1	-	4	-	-
Ragweed----------	3	2	1	-	-	3	-	1	2	-
Bermudagrass----------	2	1	1	-	1	1	-	1	1	-
Coffeeweed----------	2	1	1	-	1	1	-	-	2	-
Barnyard grass--------	1	-	1	-	-	1	-	-	1	-
Quackgrass----------	1	-	1	-	1	-	-	1	-	-
Trumpetvine----------	1	-	1	-	-	1	-	-	1	-
Bigroot morning-glory-	1	-	1	-	-	1	-	-	1	-
Red vine----------	1	-	1	-	-	1	-	-	1	-
Brachiaria----------	1	-	1	-	-	1	-	-	1	-
Velvetleaf----------	1	-	1	-	-	1	-	1	-	-
Field bindweed--------	1	1	-	-	1	-	-	1	-	-
Nutsedge----------	1	1	-	-	1	-	-	1	-	-
Jimsonweed----------	1	1	-	-	1	-	-	1	-	-
Wild cucumber---------	1	1	-	-	1	-	-	1	-	-

[3] The 7 States reporting were: Alabama, Arkansas, Kentucky, Louisiana, South Carolina, Tennessee, and Virginia.

TABLE 8.--Small Grains: Estimated extent and cost of chemical weed control, and States reporting effectiveness, usage trend, and need for better control methods, United States, 1959

State and region	Acreage treated		Average cost per acre[1]		Acreage treated by--		Effectiveness of herbicides		Herbicide usage trend[2]	Need for better herbicides
	Pre-emergence	Post-emergence	Pre-emergence	Post-emergence	Farmers	Custom operators	Pre-emergence	Post-emergence		
	1,000 acres	1,000 acres	Dollars	Dollars	Pct.	Pct.				
Connecticut	-	0.2	-	-	75	25	-	Fair	Up	Some
Delaware	-	5	-	-	-	-	-	-	-	-
Maine	-	60	-	3.50	100	-	-	Good	Up	Some
Maryland	-	20	-	1.75	70	30	-	Good	Sta.	Little
Massachusetts										
New Hampshire	-	.5	-	-	25	75	-	Good	Up	Some
New Jersey										
New York										
Pennsylvania	-	300	-	2.75	85	15	-	Fair	Up	Some
Rhode Island										
Vermont	-	2	-	-	50	50	-	Fair	Sta.	Urgent
West Virginia	-	7	-	4.00	50	50	-	Fair	Sta.	Some
Northeastern	-	395.3	-	2.84	86	14	-	3-Good 4-Fair	4-Up 3-Sta.	1-Urgent 5-Some 1-Little
Illinois	-	135	-	1.25	90	10	-	Good	Up	Some
Indiana	-	230	-	-	-	-	-	-	-	Little
Iowa	-	1,000	-	.75	95	5	-	Good	Up	Little
Kansas	-	1,981	-	3.00	75	25	-	Good	Up	Some
Michigan	-	385	-	1.50	20	80	-	Good	Up	Some
Minnesota	-	3,150	-	2.50	75	25	-	Fair	Sta.	Some
Missouri	-	30	-	2.00	50	50	-	Good	Up	Some
Nebraska	-	500	-	1.75	80	20	-	Good	Up	Some
North Dakota	-	3,700	-	1.00	90	10	-	Good	Up	Some
Ohio										
South Dakota	-	1,600	-	1.40	90	10	-	Good	Up	Little
Wisconsin	-	560	-	1.50	80	20	-	Good	Up	Little
North Central	-	13,271	-	1.77	82	18	-	9-Good 1-Fair	9-Up 1-Sta.	7-Some 4-Little
Alabama	-	35	-	1.35	90	10	-	Fair	Up	Urgent
Arkansas	-	10	-	2.50	50	50	-	Good	Up	Little
Florida										
Georgia	-	10	-	1.50	30	70	-	Good	Up	Some
Kentucky	-	25	-	2.25	95	5	-	Fair	Up	Some
Louisiana	-	1	-	1.50	95	5	-	Good	Sta.	Little
Mississippi	-	20	-	1.50	90	10	-	Good	Up	Some
North Carolina	-	50	-	-	90	10	-	Good	Up	Some
Oklahoma										
South Carolina	-	600	-	1.50	-	-	-	Good	Up	Little
Tennessee	-	2	-	1.50	90	10	-	Fair	Up	Some
Texas	-	500	-	1.60	50	50	-	Good	Up	Urgent
Virginia	-	25	-	1.50	90	10	-	Good	Up	Some
Southern	-	1,278	-	1.58	59	41	-	8-Good 3-Fair	10-Up 1-Sta.	2-Urgent 6-Some 3-Little

TABLE 8.--Small Grains: Estimated extent and cost of chemical weed control, and States reporting effectiveness, usage trend, and need for better control methods, United States, 1959--Continued

State and region	Acreage treated		Average cost per acre[1]		Acreage treated by--		Effectiveness of herbicides		Herbicide usage trend[2]	Need for better herbicides
	Pre-emergence	Post-emergence	Pre-emergence	Post-emergence	Farmers	Custom operators	Pre-emergence	Post-emergence		
	1,000 acres	1,000 acres	Dollars	Dollars	Pct.	Pct.				
Arizona	-	8	-	2.00	100	0	-	Good	Sta.	Little
California										
Colorado	-	150	-	2.50	25	75	-	Good	Sta.	Little
Idaho	0.5	700	-	2.00	90	10	-	Good	Up	Some
Montana	-	3,500	-	1.35	60	40	-	Fair	Up	Some
Nevada										
New Mexico	-	1	-	2.50	100	0	-	Fair	Sta.	Some
Oregon	-	1,200	-	3.00	50	50	-	Good	Sta.	Little
Utah	-	100	-	2.00	90	10	-	Fair	Up	Some
Washington										
Wyoming	-	120	-	-	-	-	-	-	-	-
Western	0.5	5,779	-	1.82	61	39	-	4-Good 3-Fair	3-Up 4-Sta.	4-Some 3-Little
UNITED STATES--	0.5	20,723.3	-	1.79	75	25	-	24-Good 11-Fair	26-Up 9-Sta.	3-Urgent 22-Some 11-Little

[1] Represents cost of herbicide custom applications and/or cost of farmer-applied herbicides.
[2] "Sta." refers to a report of stationary.

TABLE 9 --Small Grains: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Northeastern:[1]										
Wild mustard	6	-	4	2	-	4	2	2	2	2
Quackgrass	5	1	2	2	2	2	1	2	3	-
Wild onion and wild garlic	3	-	1	2	-	1	2	-	3	-
Lambsquarters	5	2	2	1	3	1	1	4	-	1
White cockle	3	1	1	1	-	2	1	1	2	-
Canada-thistle	5	-	5	-	-	2	3	2	3	-
Ragweed	5	1	4	-	2	2	1	3	1	1
Smartweed	3	-	3	-	-	2	1	1	2	-
Pigweed	4	2	2	-	2	-	2	3	-	1
Nutsedge	3	1	2	-	1	1	1	-	3	-
Common morning-glory	2	-	2	-	-	1	1	1	1	-
Foxtail	4	1	3	-	2	1	1	3	1	-
Chickweed	4	1	3	-	3	1	-	1	3	-
Field bindweed	4	2	2	-	3	1	-	3	1	-
Chicory	1	-	1	-	-	1	-	1	-	-
Milkweed	1	-	1	-	-	-	1	-	1	-
Knawel	1	-	1	-	1	-	-	-	1	-
Curly dock	4	4	-	-	3	1	-	4	-	-
Wild oat	1	1	-	-	1	-	-	-	1	-
Barnyardgrass	3	2	1	-	2	-	1	2	1	-
Goosegrass	1	1	-	-	-	1	-	1	-	-
Johnsongrass	1	1	-	-	1	-	-	1	-	-
Purslane	2	1	1	-	2	-	-	2	-	-
Weed bromes	1	1	-	-	1	-	-	1	-	-
Catchfly	1	1	-	-	1	-	-	-	1	-

[1] The 6 States reporting were: Connecticut, Maine, Maryland, Pennsylvania, Vermont, and West Virginia.

North Central:[2]										
Field bindweed	11	4	6	1	3	2	6	9	1	1
Canada-thistle	9	-	7	2	-	5	4	7	2	-
Johnsongrass	4	2	1	1	2	-	2	2	2	-
Lambsquarters	7	2	4	1	2	4	1	6	-	1
Pigweed	7	1	5	1	1	5	1	6	-	1
Quackgrass	5	2	2	1	1	2	2	4	1	-
Ragweed	7	2	4	1	1	3	3	5	1	1
Smartweed	8	3	4	1	1	2	5	7	1	-
Wild onion and wild garlic	4	2	1	1	1	1	2	2	1	1
Weed bromes	5	1	3	1	1	2	2	3	1	1
Wild mustard	10	3	7	-	2	6	2	8	1	1
Wild buckwheat	5	1	4	-	-	3	2	4	1	-
Sunflower	5	2	3	-	2	2	1	2	2	1
Foxtail	4	1	3	-	1	3	-	4	-	-
Curly dock	8	6	2	-	4	3	1	7	1	-
Cocklebur	3	1	2	-	1	1	1	2	-	1
Wild oat	2	-	2	-	-	2	-	2	-	-
Sowthistle, perennial	5	3	2	-	3	1	1	4	1	-
Kochia	4	2	2	-	2	1	1	2	-	2
Field pennycress	3	-	3	-	-	2	1	2	-	1
Common morning-glory	5	4	1	-	3	-	2	4	-	1
Barnyard grass	4	3	1	-	1	3	-	4	-	-
Purslane	1	-	1	-	-	1	-	1	-	-
Pepperweed	1	-	1	-	-	1	-	1	-	-
Bitter wintercress	1	-	1	-	-	1	-	1	-	-
Hemp	1	-	1	-	-	1	-	-	1	-
Wild rose	1	-	1	-	-	1	-	1	-	-
Milkweed	2	1	1	-	1	1	-	1	1	-
Henbit	1	1	-	-	1	-	-	-	1	-
Chickweed	1	1	-	-	1	-	-	1	-	-
Nimblewill	1	1	-	-	1	-	-	-	1	-
White cockle	1	1	-	-	1	-	-	-	-	1
Goatgrass	1	1	-	-	-	1	-	-	1	-

[2] The 11 States reporting were: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, and Wisconsin.

TABLE 9.--Small Grains: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959--Continued

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
Southern:[3]	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Wild onion and wild garlic	8	-	4	4	-	4	4	2	5	-
Curly dock	7	5	-	2	5	-	2	2	4	-
Wild mustard	7	1	4	2	2	4	1	2	3	1
Blessed thistle	4	2	1	1	1	3	-	-	2	1
Darnel	1	-	-	1	-	-	1	-	1	-
Canada-thistle	1	-	-	1	-	-	1	-	1	-
Bitterweed	1	-	-	1	-	-	1	1	-	-
Johnsongrass	3	-	3	-	1	2	-	-	2	-
Corn cockle	5	3	2	-	2	3	-	3	1	-
Weed brome	6	2	3	1	3	2	1	3	3	-
Chickweed	6	5	1	-	5	1	-	3	2	-
Field bindweed	2	1	1	-	1	-	1	1	1	-
Lambsquarters	3	2	1	-	2	1	-	2	1	-
Pigweed	1	-	1	-	-	1	-	-	1	-
Ragged-robin	2	1	1	-	1	1	-	-	1	-
Camphorweed	1	-	1	-	-	1	-	1	-	-
Vetch	4	3	1	-	1	3	-	2	1	-
Blueweed	1	-	1	-	-	1	-	-	1	-
German moss	1	-	1	-	-	1	-	-	1	-
Plantain	1	-	1	-	1	-	-	1	-	-
Wild barley	1	-	1	-	-	1	-	-	1	-
Henbit	4	4	-	-	4	-	-	1	3	-
Bermudagrass	1	1	-	-	1	-	-	1	-	-
Smartweed	1	1	-	-	1	-	-	1	-	-
Peppergrass	2	2	-	-	2	-	-	2	-	-
Shepherdspurse	1	1	-	-	1	-	-	-	1	-
Cranesbill	1	1	-	-	1	-	-	1	-	-
Winter peas	1	1	-	-	1	-	-	1	-	-
Mayweed	1	1	-	-	-	1	-	-	1	-
Fleabane	1	1	-	-	1	-	-	1	-	-

[3] The 10 States reporting were: Alabama, Arkansas, Florida, Georgia, Kentucky, North Carolina, South Carolina, Tennessee, Virginia and Texas. Some States made no report on the infestation trend.

Western:[4]										
Wild oat	6	3	2	1	-	1	4	1	3	-
Corn gromwell	3	-	-	3	-	-	3	-	3	-
Field bindweed	3	-	-	3	-	-	3	-	3	-
Canada-thistle	4	-	2	2	-	2	2	2	2	-
Weed brome	7	1	4	2	1	4	2	1	6	-
Knawel	2	-	-	2	-	1	1	-	2	-
Cow cockle	2	-	-	2	-	-	2	-	2	-
Russian thistle	5	-	3	2	-	4	1	4	1	-
Kochia	4	-	3	1	-	4	-	1	3	-
Lambsquarters	9	2	6	1	5	4	-	7	-	2
Pigweed	8	1	6	1	3	5	-	5	1	2
Quackgrass	6	1	4	1	2	2	2	3	3	-
Foxtail	6	1	5	-	6	-	-	2	4	-
Sunflower	5	2	3	-	2	3	-	4	1	-
Witchgrass	3	-	3	-	2	1	-	-	3	-
Spiny sowthistle	4	2	2	-	1	3	-	4	-	-
Johnsongrass	3	1	2	-	1	2	-	2	1	-
Barnyard grass	4	2	2	-	4	-	-	1	3	-
Ragweed	4	2	2	-	1	2	1	2	1	1
Curly dock	2	1	1	-	1	1	-	1	1	-
Henbit	1	-	1	-	-	-	1	1	-	-
Dogfennel	1	-	1	-	-	-	1	1	-	-
Smartweed	4	3	1	-	3	1	-	2	2	-
London rocket	1	-	1	-	-	1	-	1	-	-
Wild onion	2	2	-	-	2	-	-	2	-	-
Prickly lettuce	2	2	-	-	-	2	-	2	-	-
Cogswellia	1	1	-	-	1	-	-	1	-	-
Wild buckwheat	1	1	-	-	1	-	-	-	1	-
Bedstraw	1	1	-	-	-	1	-	-	1	-
Povertyweed	1	1	-	-	1	-	-	1	-	-
White nightshade	1	1	-	-	-	1	-	1	-	-
Mallow	1	1	-	-	1	-	-	1	-	-
Sourclover	1	1	-	-	1	-	-	1	-	-

[4] The 9 States reporting were: Arizona, Colorado, Idaho, Montana, New Mexico, Oregon, Utah, Washington, and Wyoming.

TABLE 10.--Rice: Estimated extent and cost of chemical weed control, and States reporting effectiveness, usage trend, and need for better control methods, United States, 1959

State and region	Acreage treated		Average cost per acre[1]		Acreage treated by--		Effectiveness of herbicides		Herbicide usage trend[2]	Need for better herbicides
	Pre-emergence	Post-emergence	Pre-emergence	Post-emergence	Farmers	Custom operators	Pre-emergence	Post-emergence		
	1,000 acres	1,000 acres	Dollars	Dollars	Pct.	Pct.				
Arkansas	-	65	-	2.00	50	50	-	Good	Up	Some
Louisiana	-	150	-	2.00	5	95	-	Good	Sta.	Some
Mississippi	-	12	-	1.50	90	10	-	Good	Sta.	Some
Texas	-	275	-	1.60	5	95	-	Good	Up	Urgent
Southern	-	502	-	1.77	13	87	-	4-Good	2-Up 2-Sta.	1-Urgent 3-Some
Western	(No reports received from the Western States.)									
UNITED STATES	-	502	-	1.77	13	87	-	4-Good	2-Up 2-Sta.	1-Urgent 3-Some

[1] Represents cost of herbicide custom applications and/or cost of farmer-applied herbicides.
[2] "Sta." refers to a report of stationary.

TABLE 11.--Rice: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Southern:[1]										
Barnyard grass	3	-	-	3	-	-	3	1	2	-
Aquatics, submerged	2	-	1	1	-	2	-	-	2	-
Aquatics, emergent	1	-	-	1	-	1	-	-	1	-
Tall indigo	3	1	2	-	-	3	-	1	2	-
Mexicantea	2	-	2	-	-	2	-	1	1	-
Starthistle	1	-	1	-	-	1	-	-	1	-
Jungle rice	2	1	1	-	1	-	1	-	2	-
Plantain, mud and broadleaf	1	-	1	-	-	1	-	-	1	-
Coffeeweed	1	-	1	-	-	1	-	-	1	-
Smartweed	1	-	1	-	-	1	-	1	-	-
Curly dock	1	-	1	-	-	1	-	-	1	-
Foxtail	1	1	-	-	1	-	-	-	1	-
Goosegrass	1	1	-	-	1	-	-	1	-	-
Panic grass	1	1	-	-	1	-	-	-	1	-
Umbrella	1	1	-	-	1	-	-	-	1	-
Alligator weed	1	1	-	-	1	-	-	-	1	-
Spearherd	1	1	-	-	-	-	1	-	1	-

[1] The 3 States reporting were: Arkansas, Louisiana, and Texas.

TABLE 12.--Peanuts: Estimated extent and cost of chemical weed control, and States reporting effectiveness, usage trend, and need for better control methods, United States, 1959

State and region	Acreage treated		Average cost per acre[1]		Acreage treated by--		Effectiveness of herbicides		Herbicide usage trend	Need for better herbicides
	Pre-emergence	Post-emergence	Pre-emergence	Post-emergence	Farmers	Custom operators	Pre-emergence	Post-emergence		
	1,000 acres	1,000 acres	Dollars	Dollars	Pct.	Pct.				
Alabama	3.9	-	-	-	98	2	-	-	-	-
Arkansas										
Florida	4	1	5.00	-	100	0	Fair	-	Up	Some
Georgia	18	2	3.00	3.00	100	0	Fair	Fair	Up	Urgent
Kentucky										
Louisiana										
Mississippi										
North Carolina	5	-	-	-	100	0	Poor	-	-	Urgent
Oklahoma										
South Carolina	1	-	-	-	100	0	-	-	-	-
Tennessee										
Texas										
Virginia										
Southern	31.9	3	3.36	3.00	99.8	0.2	2-Fair 1-Poor	1-Fair	2-Up	2-Urgent 1-Some
UNITED STATES	31.9	3	3.36	3.00	99.8	0.2	2-Fair 1 Poor	1-Fair	2-Up	2-Urgent 1-Some

[1] Represents cost of herbicide custom applications and/or cost of farmer-applied herbicides.

TABLE 13.--Peanuts: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Southern:[1]										
Crabgrass	5	-	-	5	-	2	3	2	2	-
Nutsedge	5	2	1	2	1	3	1	2	2	-
Common purslane	2	-	-	2	-	1	1	-	2	-
Goosegrass	4	1	2	1	1	2	1	2	1	-
Bermudagrass	4	1	2	1	2	1	1	2	1	-
Sandbur	1	-	-	1	-	-	1	-	1	-
Pigweed	4	2	2	-	2	2	-	3	-	-
Cocklebur	3	1	2	-	2	1	-	2	-	-
Common morning-glory	3	1	2	-	1	2	-	2	-	-
Smartweed	3	2	1	-	1	2	-	1	1	-
Ragweed	2	1	1	-	1	1	-	-	1	-
Johnsongrass	3	2	1	-	2	1	-	-	2	1
Colorado grass	1	-	1	-	-	1	-	1	-	-
Barnyard grass	2	2	-	-	2	-	-	2	-	-
Lambsquarters	2	2	-	-	1	1	-	1	-	-
Foxtail	1	1	-	-	1	-	-	1	-	-
Pepperweed	1	1	-	-	1	-	-	-	1	-
Horsenettle, Carolina	1	1	-	-	1	-	-	1	-	-
Mexican clover	1	1	-	-	-	1	-	1	-	-

[1] The 5 States reporting were: Alabama, Georgia, North Carolina, Texas, and Virginia. One State made no report on the infestation trend.

TABLE 14.--Sugar Beets: Estimated extent and cost of chemical weed control, and States reporting effectiveness, usage trend, and need for better control methods, United States, 1959

State and region	Acreage treated		Average cost per acre[1]		Acreage treated by--		Effectiveness of herbicides		Herbicide usage trend[2]	Need for better herbicides
	Pre-emergence	Post-emergence	Pre-emergence	Post-emergence	Farmers	Custom operators	Pre-emergence	Post-emergence		
	1,000 acres	1,000 acres	Dollars	Dollars	Pct.	Pct.				
Northeastern--	(No reports received from the Northeastern States.)									
Illinois										
Indiana										
Iowa----------	10	10	4.00	3.00	95	5	Fair	Fair	Up	Some
Kansas										
Michigan-------	3	-	4.50	-	50	50	Good	-	Up	Some
Minnesota------	1.8	7.2	4.00	3.00	85	15	-	-	Sta.	Some
Missouri										
Nebraska-------	35	-	3.00	-	100	0	Fair	-	Up	Some
North Dakota----	1	3	4.50	3.00	99	1	Good	Good	Up	Urgent
Ohio										
South Dakota										
Wisconsin										
North Central-	50.8	20.2	3.35	3.00	95	5	2-Good 2-Fair	1-Good 1-Fair	4-Up 1-Sta.	1-Urgent 4-Some
Arizona---------	0.7	-	10.00	-	100	0	Good	-	Up	Some
California										
Colorado--------	20	20	10.00	6.00	90	10	Fair	Fair	Up	Some
Idaho-----------	.6	.2	9.00	4.00	99	1	Poor	Fair	Up	Urgent
Montana---------	6	-	3.00	-	100	0	Poor	-	Sta.	Urgent
Nevada										
New Mexico										
Oregon										
Utah------------	.5	.2	10.00	-	100	0	Poor	-	Up	Urgent
Washington										
Wyoming---------	3	2	7.50	7.50	100	0	Fair	Fair	Up	Urgent
Western-------	30.8	22.4	8.37	6.12	92	8	1-Good 2-Fair 3-Poor	3-Fair	5-Up 1-Sta.	4-Urgent 2-Some
UNITED STATES-	81.6	42.6	5.24	4.63	94	6	3-Good 4-Fair 3-Poor	1-Good 4-Fair	9-Up 2-Sta.	5-Urgent 6-Some

[1] Represents cost of herbicide custom applications and/or cost of farmer-applied herbicides.
[2] "Sta." refers to a report of stationary.

TABLE 15.--Sugar Beets: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
North Central:[1]										
Foxtail	4	1	-	3	1	1	2	4	-	-
Barnyard grass	4	2	1	1	2	2	-	4	-	-
Crabgrass	2	1	-	1	1	1	-	2	-	-
Cocklebur	2	1	-	1	1	-	1	1	-	1
Lambsquarters	4	2	1	1	2	2	-	4	-	-
Pigweed	4	1	2	1	2	2	-	4	-	-
Wild oat	2	-	1	1	-	-	2	1	1	-
Sowthistle	2	-	1	1	-	2	-	1	1	-
Sunflower	1	-	-	1	-	-	1	1	-	-
Kochia	1	-	-	1	-	1	-	1	-	-
Wild mustard	2	-	2	-	-	2	-	1	-	1
Milkweed	1	-	1	-	-	1	-	-	1	-
Ragweed	4	3	1	-	3	1	-	4	-	-
Quackgrass	1	-	1	-	1	-	-	1	-	-
Canada-thistle	1	-	1	-	-	1	-	-	1	-
Field bindweed	1	-	1	-	-	-	1	-	1	-
Common morning-glory	1	-	1	-	-	1	-	1	-	-
Smartweed	2	2	-	-	1	-	1	2	-	-
Johnsongrass	1	1	-	-	-	-	1	-	1	-
Purslane	1	1	-	-	1	-	-	1	-	-
Velvetleaf	1	1	-	-	1	-	-	1	-	-
Wild cane	1	1	-	-	-	-	1	-	1	-
Wild buckwheat	1	1	-	-	1	-	-	1	-	-
White cockle	1	1	-	-	1	-	-	1	-	-
Groundcherry	1	1	-	-	1	-	-	-	1	-
Bigroot morning-glory	1	1	-	-	-	1	-	-	1	-
Marshelder	1	1	-	-	1	-	-	1	-	-
Western:[2]										
Barnyard grass	5	1	3	1	1	4	-	1	4	-
Pigweed	5	1	3	1	2	2	1	4	1	-
Wild oats	4	-	4	-	1	3	-	1	2	1
Foxtail	5	1	4	-	1	4	-	2	3	-
Wild mustard	3	-	3	-	-	3	-	3	-	-
Lambsquarters	4	1	3	-	1	3	-	1	3	-
Field bindweed	3	1	2	-	2	1	-	-	2	1
Quackgrass	3	2	1	-	2	1	-	3	-	-
Canada-thistle	5	4	1	-	3	2	-	2	2	1
Curly dock	3	2	1	-	2	1	-	2	1	-
Weed bromes	2	1	1	-	1	1	-	1	1	-
Bitterweed	1	-	1	-	-	-	1	1	-	-
Dodder	1	-	1	-	-	1	-	-	1	-
Groundcherry	1	-	1	-	-	1	-	-	1	-
Witchgrass	1	-	1	-	-	1	-	1	-	-
Kochia	1	-	1	-	-	1	-	1	-	-
Russian thistle	1	-	1	-	-	1	-	1	-	-
Aquatics, submersed	1	-	1	-	-	1	-	-	1	-
Aquatics, emergent	1	-	1	-	-	1	-	-	1	-
Ragweed	3	3	-	-	3	-	-	3	-	-
Russian knapweed	2	2	-	-	1	1	-	2	-	-
Hairy whitetop	2	2	-	-	1	1	-	1	1	-
Cocklebur	2	2	-	-	1	1	-	1	-	1
Johnsongrass	1	1	-	-	1	-	-	-	1	-
Purslane	1	1	-	-	1	-	-	1	-	-
Smartweed	1	1	-	-	1	-	-	1	-	-
Alterplexes	1	1	-	-	1	-	-	1	-	-
Povertyweed	1	1	-	-	1	-	-	1	-	-
Common morning-glory	1	1	-	-	1	-	-	-	1	-

[1] The 4 States reporting were: Kansas, Michigan, Minnesota, and North Dakota.

[2] The 5 States reporting were: Colorado, Idaho, Montana, Utah, and Wyoming.

TABLE 16.--Sugarcane: Louisiana reporting of degree of infestation, extent of damage, and infestation trend of specified weeds, 1959

Weeds by region	State reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Southern:										
Common morning-glory--	1	-	-	1	-	1	-	-	1	-
Barnyard grass--------	1	-	-	1	-	-	1	-	1	-
Crabgrass-------------	1	-	-	1	-	-	1	-	1	-
Curly dock------------	1	-	-	1	-	-	1	-	1	-
Chickweed-------------	1	-	-	1	-	-	1	1	-	-
Henbit----------------	1	-	-	1	-	-	1	1	-	-
Johnsongrass----------	1	-	-	1	-	-	1	-	1	-
Bermudagrass----------	1	-	1	-	-	1	-	-	1	-
Purslane--------------	1	-	1	-	-	1	-	1	-	-
Pigweed---------------	1	-	1	-	-	1	-	1	-	-
Wild mustard----------	1	-	1	-	-	1	-	1	-	-
Cocklebur-------------	1	1	-	-	1	-	-	-	-	1
Foxtail---------------	1	1	-	-	1	-	-	-	-	1
Goosegrass------------	1	1	-	-	1	-	-	-	-	1
Nutsedge--------------	1	1	-	-	1	-	-	-	-	1
Ragweed---------------	1	1	-	-	1	-	-	-	-	1
Smartweed-------------	1	1	-	-	1	-	-	1	-	-
Wild lettuce----------	1	1	-	-	1	-	-	1	-	-

TABLE 17.--Sorghum: Estimated extent and cost of chemical weed control, and States reporting effectiveness, usage trend, and need for better control methods, United States, 1959

State and region	Acreage treated		Average cost per acre[1]		Acreage treated by--		Effectiveness of herbicides		Herbicide usage trend[2]	Need for better herbicides
	Pre-emergence	Post-emergence	Pre-emergence	Post-emergence	Farmers	Custom operators	Pre-emergence	Post-emergence		
	1,000 acres	1,000 acres	Dollars	Dollars	Pct.	Pct.				
Connecticut Delaware Maine Maryland Massachesetts New Hampshire New Jersey New York Pennsylvania---- Rhode Island Vermont West Virginia	-	1	-	2.75	100	0	-	Poor	Up	Some
Northeastern--	-	1	-	2.75	100	-	-	1-Poor	1-Up	1-Some
Illinois Indiana Iowa----------	-	5	-	3.75	100	0	-	Good	Sta.	Some
Kansas----------	-	1,290	-	4.00	25	75	-	Fair	Up	Some
Michigan Minnesota Missouri--------	-	85	-	1.00	80	20	-	Good	Up	Urgent
Nebraska--------	7	400	6.00	1.75	70	30	Fair	Good	Up	Urgent
North Dakota Ohio South Dakota Wisconsin										
North Central-	7	1,780	6.00	3.34	38	62	1-Fair	3-Good 1-Fair	3-Up 1-Sta.	2-Urgent 2-Some
Alabama---------	-	2	-	1.00	90	10	-	Fair	Up	Urgent
Arkansas--------	-	4	-	2.50	100	0	Good	-	Up	Urgent
Florida Georgia Kentucky--------	-	10	-	2.00	95	5	-	Fair	Sta.	Some
Louisiana Mississippi-----	-	10	-	1.00	95	5	-	Good	Up	Urgent
North Carolina Oklahoma South Carolina--	-	1	-	.40	100	0	-	Good	Up	Little
Tennessee Texas----------	1	200	6.00	1.00	40	60	Poor	Good	Up	Urgent
Virginia										
Southern------	1	227	6.00	1.07	47	53	1-Good 1-Poor	3-Good 2-Fair	5-Up 1-Sta.	4-Urgent 1-Some 1-Little
Arizona---------	-	12	-	2.00	85	15	-	Good	Sta.	Some
California Colorado--------	-	10	-	3.50	80	20	-	Fair	Sta.	Little
Idaho Montana Nevada New Mexico------	-	55	-	4.00	50	50	-	Good	Up	Some
Oregon Utah Washington Wyoming										
Western-------	-	77	-	3.62	59	41	-	2-Good 1-Fair	1-Up 2-Sta.	2-Some 1-Little
UNITED STATES-	8	2,085	6.00	3.10	40	60	1-Good 1-Fair 1-Poor	8-Good 4-Fair 1-Poor	10-Up 4-Sta.	6-Urgent 6-Some 2-Little

[1] Represents cost of herbicide custom applications and/or cost of farmer-applied herbicides.
[2] "Sta." refers to a report of stationary.

TABLE 18.--Sorghum: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Northeastern:[1]										
Canada-thistle	1	-	1	-	-	1	-	-	1	-
Foxtail	1	-	1	-	-	1	-	-	1	-
Lambsquarters	1	-	1	-	-	-	1	-	1	-
Nutsedge	1	-	1	-	-	-	1	-	1	-
Pigweed	1	-	1	-	-	1	-	-	1	-
Quackgrass	1	-	1	-	-	-	1	-	1	-
Ragweed	1	-	1	-	-	1	-	-	1	-
Smartweed	1	-	1	-	-	1	-	-	1	-
Wild mustard	1	-	1	-	-	1	-	-	1	-
Common morning-glory	1	1	-	-	-	1	-	1	-	-
Field bindweed	1	1	-	-	-	1	-	1	-	-
Johnsongrass	1	1	-	-	-	-	1	1	-	-
North Central:[2]										
Foxtail	4	-	1	3	-	2	2	1	3	-
Pigweed	4	-	2	2	1	2	1	3	-	1
Cocklebur	4	1	1	2	1	2	1	1	-	3
Crabgrass	2	-	-	2	-	2	-	1	1	-
Barnyard grass	3	1	1	1	1	2	-	3	-	-
Lambsquarters	2	-	1	1	1	1	-	2	-	-
Smartweed	3	-	2	1	-	1	2	3	-	-
Sowthistle	1	-	-	1	-	1	-	1	-	-
Sunflower	3	-	2	1	-	2	1	2	-	1
Kochia	2	1	-	1	1	1	-	2	-	-
Field bindweed	4	1	3	-	1	1	2	2	1	1
Ragweed	4	1	3	-	-	3	1	3	1	-
Common morning-glory	4	2	2	-	1	3	-	3	-	1
Velvetleaf	2	1	1	-	-	1	1	1	-	1
Milkweed	1	-	1	-	-	1	-	-	1	-
Johnsongrass	3	3	-	-	1	-	2	1	2	-
Quackgrass	1	1	-	-	1	-	-	1	-	-
Weed bromegrass	1	1	-	-	1	-	-	1	-	-
Wild mustard	1	1	-	-	1	-	-	1	-	-
Wild cane	2	2	-	-	-	-	2	-	2	-
Groundcherry	1	1	-	-	1	-	-	-	1	-
Bigroot morning-glory	1	1	-	-	-	1	-	-	1	-
Tarweed	1	1	-	-	-	1	-	1	-	-
Southern:[3]										
Crabgrass	5	-	3	2	1	2	2	3	2	-
Pigweed	5	1	1	3	2	-	3	2	3	-
Common morning-glory	5	2	2	1	1	2	2	3	2	-
Cocklebur	5	1	3	1	1	3	1	3	2	-
Johnsongrass	5	1	1	3	1	1	3	1	4	-
Lambsquarters	4	1	3	-	1	3	-	3	1	-
Ragweed	4	2	2	-	2	2	-	2	2	-
Coffeeweed	1	-	1	-	-	1	-	-	1	-
Horsenettle, Carolina	1	-	1	-	-	1	-	-	1	-
Barnyard grass	2	1	1	-	1	1	-	-	2	-
Foxtail	2	-	2	-	-	1	1	-	2	-
Goosegrass	3	2	1	-	2	1	-	2	1	-
Nutsedge	3	2	1	-	2	1	-	1	2	-
Smartweed	3	2	1	-	1	2	-	2	1	-
Field bindweed	1	-	1	-	-	-	1	-	1	-
Bermudagrass	1	-	1	-	-	1	-	1	-	-
Trumpetvine	1	-	1	-	1	-	-	-	1	-
Bigroot morning-glory	1	-	1	-	1	-	-	-	1	-
Red vine	1	-	1	-	1	-	-	-	1	-

[1]The State reporting was Pennsylvania.

[2]The 4 States reporting were: Iowa, Kansas, Missouri, and Nebraska.

TABLE 18.--Sorghum: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959--Continued

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Southern[3]--Con.										
Brachiaria	1	-	1	-	-	1	-	-	1	-
Wild cucumber	1	-	1	-	-	1	-	1	-	-
Wild sorghum	1	-	1	-	-	-	1	-	1	-
Weed bromegrass	1	1	-	-	1	-	-	1	-	-
Nightshade	1	1	-	-	1	-	-	1	-	-
Curly dock	1	1	-	-	1	-	-	1	-	-
Western:[4]										
Pigweed	3	-	1	2	1	-	2	2	-	-
Johnsongrass	2	-	-	2	-	1	1	1	-	-
Barnyard grass	3	1	1	1	1	2	-	3	-	-
Foxtail	1	-	-	1	-	1	-	1	-	-
Field bindweed	3	1	2	-	-	3	-	1	2	-
Common morning-glory	2	1	1	-	-	1	1	2	-	-
Bermudagrass	1	-	1	-	-	1	-	1	-	-
Groundcherry	1	-	1	-	-	1	-	1	-	-
Puncturevine	1	-	1	-	1	-	-	1	-	-
Sunflower	2	1	1	-	1	1	-	1	-	-
Silverleaf nightshade	1	-	1	-	-	1	-	1	-	-
Sandbur	1	-	1	-	1	-	-	-	1	-
Curly dock	1	1	-	-	1	-	-	1	-	-
Nutsedge	1	1	-	-	1	-	-	-	-	-
Ragweed	1	1	-	-	1	-	-	1	-	-
Weed bromegrass	1	1	-	-	1	-	-	1	-	-
Wild mustard	1	1	-	-	1	-	-	1	-	-
Russian thistle	1	1	-	-	1	-	-	1	-	-

[3] The 6 States reporting were: Alabama, Arkansas, Kentucky, South Carolina, Tennessee, and Texas.

[4] The 3 States reporting were: Arizona, Colorado, and New Mexico.

TABLE 19.--Forage Seeds: Estimated extent and cost of chemical weed control, and States reporting effectiveness, usage trend, and need for better control methods, United States, 1959

State and region	Acreage treated		Average cost per acre[1]		Acreage treated by--		Effectiveness of herbicides		Herbicide usage trend[2]	Need for better herbicides
	Pre-emergence	Post-emergence	Pre-emergence	Post-emergence	Farmers	Custom operators	Pre-emergence	Post-emergence		
	1,000 acres	1,000 acres	Dollars	Dollars	Pct.	Pct.				
Connecticut										
Delaware										
Maine										
Maryland										
Massachusetts										
New Hampshire										
New Jersey										
New York										
Pennsylvania										
Rhode Island										
Vermont	0.1	0.1	-	-	90	10	Fair	Fair	Up	Urgent
West Virginia										
Northeastern--	0.1	0.1	-	-	90	10	1-Fair	1-Fair	1-Up	1-Urgent
Illinois										
Indiana										
Iowa										
Kansas										
Michigan										
Minnesota	-	6.5	-	9.00	95	5	-	Fair	Sta.	Urgent
Missouri	-	15	-	2.00	95	5	-	Fair	-	Urgent
Nebraska										
North Dakota	-	.5	-	1.50	100	0	-	Good	Up	Some
Ohio										
South Dakota										
Wisconsin										
North Central-	-	22	-	4.06	95	5	-	1-Good 2-Fair	1-Up 1-Sta.	2-Urgent 1-Some
Alabama	-	2	-	1.25	100	0	-	Fair	Up	Some
Arkansas										
Florida										
Georgia										
Kentucky	-	50	-	2.25	90	10	-	Good	Up	Urgent
Louisiana										
Mississippi										
North Carolina										
Oklahoma										
South Carolina										
Tennessee										
Texas										
Virginia	-	.2	-	3.00	-	-	-	Poor	-	Urgent
Southern------	-	52.2	-	2.21	90	10	-	1-Good 1-Fair 1-Poor	2-Up	2-Urgent 1-Some
Arizona	-	1	-	3.50	100	0	-	Fair	Up	Some
California										
Colorado	-	2.5	-	5.00	80	20	-	Fair	Up	Some
Idaho	-	.5	-	12.00	50	50	-	Poor	Up	Urgent
Montana	0.2	1	-	-	-	-	-	-	-	-
Nevada										
New Mexico										
Oregon	-	200	-	8.00	75	25	-	Good	Up	Urgent
Utah	-	2	-	15.00	100	0	-	Poor	Sta.	Urgent
Washington										
Wyoming	-	.5	-	-	-	-	-	-	-	-
Western-------	0.2	207.5	-	8.02	75	25	-	1-Good 2-Fair 2-Poor	4-Up 1-Sta.	3-Urgent 2-Some
UNITED STATES-	0.3	281.8	-	6.63	80	20	1-Fair	3-Good 6-Fair 3-Poor	8-Up 2-Sta.	8-Urgent 4-Some

[1] Represents cost of herbicide custom applications and/or cost of farmer-applied herbicides.
[2] "Sta." refers to a report of stationary.

TABLE 20.--Forage Seeds: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Northeastern:[1]										
Dandelion	1	-	1	-	1	-	-	-	1	-
Quackgrass	1	1	-	-	1	-	-	1	-	-
Chicory	1	1	-	-	1	-	-	-	-	1
Bedstraw	1	1	-	-	1	-	-	-	-	1
Curly dock	1	1	-	-	1	-	-	-	-	1
Southern:[2]										
Chickweed	3	2	-	1	2	1	-	-	3	-
Pepperweed	1	-	-	1	-	-	1	-	1	-
Wild Onion and wild garlic	4	-	4	-	-	3	1	-	4	-
Wild mustard	3	-	3	-	2	1	-	-	3	-
Crabgrass	1	-	1	-	1	-	-	1	-	-
Canada-thistle	1	-	1	-	-	1	-	1	-	-
Curly dock	4	2	2	-	3	1	-	1	3	-
Dodder	3	2	1	-	2	1	-	1	2	-
Henbit	3	2	1	-	2	1	-	1	2	-
Lambsquarters	2	1	1	-	1	1	-	1	1	-
Weed bromegrass	2	-	2	-	1	1	-	1	1	-
Shepherdspurse	2	1	1	-	1	1	-	1	1	-
Cranesbill	1	-	1	-	-	1	-	-	1	-
Darnel	1	-	1	-	-	1	-	-	1	-
Blessed thistle	1	-	1	-	-	-	1	-	1	-
Wild verbena	1	-	1	-	-	1	-	1	-	-
Camphor weed	1	-	1	-	-	1	-	-	1	-
Smartweed	1	1	-	-	1	-	-	-	1	-
Quackgrass	1	1	-	-	-	-	1	-	1	-
Pigweed	1	1	-	-	1	-	-	-	1	-
Johnsongrass	1	1	-	-	1	-	-	-	1	-
Foxtail	1	1	-	-	1	-	-	1	-	-
Purslane	1	1	-	-	1	-	-	1	-	-
Western:[3]										
Dodder	3	-	1	2	-	-	3	-	3	-
Wild mustard	1	-	-	1	-	1	-	-	1	-
Black medic	1	-	-	1	-	1	-	-	1	-
Quackgrass	2	-	2	-	-	2	-	1	1	-
Weed bromegrass	2	-	2	-	-	2	-	1	1	-
Red sorrel	2	-	2	-	1	1	-	-	2	-
Foxtail	1	-	1	-	-	1	-	-	1	-
Lambsquarters	1	-	1	-	-	1	-	-	1	-
Pigweed	1	-	1	-	-	1	-	-	1	-
Prickly lettuce	1	-	1	-	-	1	-	1	-	-
Russian thistle	1	-	1	-	1	-	-	1	-	-
Whitetop	2	1	1	-	-	1	1	1	1	-
Russian knapweed	1	1	-	-	-	-	1	1	-	-

[1] The State reporting was Vermont (trefoil crop).
Note: This was also included with hay crops.

[2] The 4 States reporting were: Alabama, Arkansas, Georgia, and Virginia.

[3] The 3 States reporting were: Idaho Oregon, and Utah.

TABLE 21.--Tobacco Plant Beds: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Southern:[1]										
Crabgrass	2	-	-	1	-	-	1	1	1	-
Chickweed	1	-	-	1	-	-	1	1	-	-
Pigweed	1	-	-	1	-	1	-	1	-	-
Common morning-glory	1	-	1	-	-	1	-	1	-	-
Bermudagrass	2	-	1	-	-	1	-	2	-	-
Lambsquarters	1	-	1	-	-	1	-	1	-	-
Nutsedge	1	-	1	-	-	1	-	1	-	-
Cocklebur	1	1	-	-	1	-	-	1	-	-
Goosegrass	1	1	-	-	1	-	-	1	-	-

[1] The 2 States reporting were: Georgia and South Carolina.

TABLE 21, A.--Field Tobacco: Georgia reporting of degree of infestation, extent of damage, and infestation trend of specified weeds, 1959

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Southern:[1]										
Purslane	1	-	1	-	-	1	-	1	-	1
Bermudagrass	1	1	-	-	1	-	-	1	-	-
Barnyard grass	1	1	-	-	1	-	-	-	1	-
Crabgrass	1	1	-	-	1	-	-	-	1	-
Goosegrass	1	1	-	-	1	-	-	1	-	-
Nutgrass	1	1	-	-	1	-	-	-	1	-
Sandbur	1	1	-	-	1	-	-	1	-	-

IV. HORTICULTURAL CROPS

Weed control research has produced effective practical methods of chemical weed control in many crops and in many noncrop land areas. Eager to reduce losses caused by weeds, farmers have adopted improved chemical weed control measures soon after their development. Much progress has been made in developing chemical methods for the control of weeds in a few horticultural crops grown in particular areas but methods have not been devised for using herbicides on many types of horticultural crops. In 1959, about 289,000 acres of horticultural crops were reported as treated with herbicides at a cost for herbicides and application in excess of $1\frac{1}{2}$ million (table 1). For most of the horticultural crops discussed, there were no data obtained on the extent and cost of chemical weed control and, therefore, the data presented in tables should be interpreted in this light.

A. Vegetable Crops. Twenty States reported information on the extent and cost of chemical weed control in vegetable crops. Though incomplete, the data show trends of usage in the various areas. Approximately 72,000 acres of vegetable crops received pre-emergence and 200,000 acres post-emergence treatments with herbicides in 1959--at a total cost of approximately $1\frac{1}{2}$ million (tables 1 and 22). Pre-emergence treatments for weed control in vegetables averaged $8.10 per acre; post-emergence treatments averaged $4.08. Farmers used their own equipment to treat 84 percent of the total acreage; custom operators treated 16 percent.

Effectiveness of pre- and post-emergence applications of herbicides (table 22) was generally rated fair-to-good. Trend of usage was upward in 16 out of the 20 States. Twelve out of the 20 States reported some need for better herbicides and 8 reported an urgent need.

Although the number of States reporting from some regions is limited, it is evident that herbicides are being used effectively in the growing of vegetables in all areas of the country in association with the many different cultural methods, crops, and climatic conditions that are characteristic of the areas.

The weed species in vegetable crops in 1959 are shown in table 23 for the various geographical areas, by degree of infestation, extent of damage, and infestation trend.

In the Northeastern States moderate-to-heavy infestations of lambsquarters, pigweed, barnyard grass, chickweed, ragweed, crabgrass, smartweed, quackgrass, purslane, and nutsedge generally occurred in vegetable crops in moderate degree, but some States reported slight and others heavy infestation.

The data indicate that many severe weed problems occur in vegetable crops in the Southern States. Of the 6 States reporting from the South, crabgrass, chickweed, henbit, Johnsongrass, lambsquarters, foxtail, pigweed, Bermudagrass, nutsedge, ragweed, morning-glory, goosegrass, and purslane generally ranged from slight-to-heavy infestation. Extent of damage by these weeds parallels rather closely the indicated degrees of infestation. Most weeds occurring in slight-to-heavy infestation appeared to be increasing in infestation in one or more States. The trend of infestation of Bermudagrass and nutsedge may have been down to some extent, owing to new and more effective methods developed in some areas for controlling these weeds.

Three of the Western States reported problems with weeds in vegetable crops. London rocket was the only weed showing a heavy infestation level. Mostly moderate (and some slight) infestations were reported of purslane, lambsquarters, pigweed, bindweed, barnyard grass, Canada-thistle, cocklebur, foxtail, nutsedge, quackgrass, smartweed, and wild oats. The extent of damage was reported as heavy for purslane, pigweed, nutsedge, and quackgrass. The survey data indicate in general that severe weed problems in vegetables occur in the Western States and that present methods of control have not yet proved effective in reversing an upward infestation trend for many weeds.

Wisconsin was the only State reporting from the North Central States. The data, however, may indicate problems that are common to many of the States in the region. Heavy infestation of crabgrass, foxtail, lambsquarters, purslane, pigweed, quackgrass, and smartweed was reported. Other weeds were of moderate infestation. Heavy damage was reported from crabgrass, foxtail, lambsquarters, purslane, pigweed, quackgrass, barnyard grass, and Canada-thistle. Crabgrass and foxtail were on an upward trend, and the remaining species reported were considered as being static. It is apparent that heavy infestations of weeds cause severe damage to vegetable crops in Wisconsin and probably in other of the North Central States.

B. Potatoes. Weed problems in potatoes are given in table 24 by species, degree of infestation, extent of damage, and infestation trend. Heavy infestations of ragweed, smartweed, wild mustard, nutsedge, and crabgrass were reported for the Northeastern States. For these and certain other species, the extent of damage generally was moderate-to-heavy and the infestation trend was static or upward.

In the North Central States, moderate-to-heavy infestations of many of the same weeds plus wild oats, wild mustard, and sowthistle were reported. The extent of damage for these species was generally moderate. Reports from the North Central States indicate that certain of the weed species are being effectively controlled by present methods.

The only State reporting from the western region was Idaho. Heavy infestations of bindweed, barnyard grass, and Canada-thistle were reported; all of them caused heavy damage. A moderate infestation of quackgrass caused heavy damage. The infestation trend is upward for approximately 50 percent of the species reported.

C. Sweet Corn. (See also Corn, p. 3.) Weed problems by species, degree of infestation, extent of damage, and infestation

trend in sweet corn for three southern States are given in table 25. None of the weeds showed a downward infestation trend in any of the States reporting. An upward infestation trend was shown for 16 out of 21 species in one or more of the States reporting. No State reported a downward trend for any weed. Of the 16 weed species reported as increasing in one or another of the States, 12 were not given a static rating by any of the other States.

D. Mint. Weed problems in mint are reported for 1959 by species, degree of infestation, extent of damage, and infestation trend for two States (table 26). Heavy infestation of quackgrass was reported and moderate infestations of such weeds as bindweed, curly dock, smartweed, Canada-thistle, checkweed, lambsquarters, and nutsedge. Heavy damage was reported from quackgrass, lambsquarters, and pigweed and moderate damage from eight species. Generally the trend of infestation of the species listed was upward.

E. Fruits and Nuts. The data on fruits and nuts are fragmentary and must therefore be interpreted with caution. Over 5,000 acres of fruit and nut crops were reported as treated post-emergently in 9 States in 1959 at a cost of approximately $43,000 (tables 1 and 27). Post-emergence applications were used almost exclusively and cost about $8 per acre. Practically all of the herbicides were applied by farmers rather than by custom operators.

Seven of the 9 States employing post-emergence treatments reported the results as fair; 2 reported good results. Herbicide usage in the States reporting shows an upward trend in 7 of the 9 States. Four of the States reported some need for better herbicides and 5 reported an urgent need.

Weed problems in fruit and nut crops in several geographical regions are given in table 28 by species, degree of infestation, extent of damage, and infestation trend. The Northeastern States reported heavy damage from quackgrass, crabgrass, and barnyard grass, but by no more than one State each. Quackgrass and crabgrass were also reported as moderate, and moderate damage was reported for seven other weeds. The infestation trend for poison-ivy and Canada-thistle was downward, indicating use of effective methods of control on these species. The infestation trend, although generally static, was upward for crabgrass, barnyard grass, chickweed, and several other weeds.

Wisconsin was the north-central State reporting on weed control in fruit and nut crops. Heavy infestation of quackgrass was listed as causing moderate damage. Ragweed, pigweed, purslane, lambsquarters, foxtail, and chickweed occurred in moderate infestations. Damage was reported as slight from all the weeds except for moderate damage from quackgrass. The trend of infestation was upward on quackgrass, foxtail, and chickweed and static on the other species reported.

Weed problems in fruit and nut crops in the Southern States were reported from Virginia and Alabama. Moderate infestations of Bermudagrass, crabgrass, Johnsongrass, nutsedge, purslane, quackgrass, ragweed, and wild onion and wild garlic were reported; these caused slight-to-moderate damage. The infestation trend was upward for Johnsongrass, quackgrass, and curly dock, but the other weed species were reported as static.

In at least 1 of 4 western States heavy infestations of Canada-thistle, quackgrass, ragweed, bindweed, barnyard grass, and puncturevine were reported. Quackgrass, purslane, and pigweed were reported as of moderate infestation from 2 States each. Of these 3 weeds, Canada-thistle and quackgrass caused moderate damage in 2 States each. Infestation trend was upward for Canada-thistle, quackgrass, ragweed, barnyard grass, puncturevine, and rabbitbrush, with the remainder of the species being static. No downward trend was shown, indicating that present methods of weed control are not reducing populations of these weeds.

F. Small Fruits and Berries. Three Southern States reported that 2,000 acres of strawberries were treated pre-emergently with herbicides in 1959 and 3,300 acres treated post-emergently--at a total cost of over $55,000 (tables 1 and 29). Cost of pre-emergence treatments averaged $17.60 per acre as compared to $6.18 per acre for post-emergence treatments. Of the total acreage treated 97 percent was done by farmers with their own equipment.

Effectiveness of the treatments on strawberries was reported as fair, and the trend in the use of herbicides was upward. Two

States indicated some need and 1 indicated an urgent need for better herbicides for strawberries. These data indicate some interest in using herbicides for weed control in strawberries in the Southern States, but lack of information from any other region does not permit a worthwhile assessment of the extent and importance of the weed control problem and how it is being dealt with.

The degree of infestation, extent of damage, and infestation trend of weed species occurring in small fruits and berries are presented in table 30. In two Southern States heavy infestations were reported of crabgrass, chickweed, brachiaria, Bermudagrass, witchgrass, pigweed, henbit, and evening primrose; all these caused heavy damage in at least 1 of the 2 reporting States. A downward trend in curly dock infestation was reported from one State, indicating that control methods for this weed are effective. The infestation trend of the other weeds were generally reported on by one State only, either as static or as upward.

In two Western States moderate infestation of quackgrass, Canada-thistle, pigweed, lambsquarters, chickweed, weed bromegrass, and barnyard grass were reported, with each causing moderate damage. The infestation trend was upward for all of the weed species mentioned, indicating need for more effective weed control in small fruits and berries in the Western States.

G. Ornamentals. Information concerning weed control in ornamental crops was reported only from the northeastern and southern geographical regions. Of 6 States reporting, approximately 2,500 acres of ornamental crops were treated in pre- and post-emergence treatments at a total cost of $45,000 (tables 1 and 31). The average cost per acre for pre-emergence treatments was about $10, for post-emergence treatments about $19. Approximately 70 percent of the total acreage was treated by nurserymen and home owners with their own equipment.

Reports of effectiveness of herbicide treatments indicate that control was generally fair. Herbicide usage appears to be increasing. Of 6 States reporting need for better herbicides, 2 indicated an urgent need and 4 some need for such improvement.

Weed problems by species, degree of infestation, extent of damage, and infestation trend in ornamentals are given in table 32 for the several geographical regions.

Many weeds in the Northeast were considered to be of moderate infestation in ornamentals. Of 5 reporting Northeastern States, 1 or 2 indicated a heavy weed infestation for pigweed, ragweed, smartweed, purslane, lambsquarters, and crabgrass. In one or another of the 5 States, damage was reported as moderate or moderate to heavy in infestations by the first 4 of the weeds listed above, as well as by others such as quackgrass, dodder, and foxtail. The infestation trend was reported as up in two States each for ragweed, quackgrass, dodder, and others.

In Wisconsin heavy infestations were reported in ornamental crops for crabgrass, chickweed, foxtail, lambsquarters, pigweed, and quackgrass; these produced heavy damage. Several other weeds occurred as moderate infestations; they produced moderate damage except for heavy damage resulting from Canada-thistle. The infestation trend was upward for chickweed, foxtail, and Canada-thistle, and the remaining species were stable.

In Georgia and Kentucky heavy infestation of chickweed, crabgrass, and henbit were reported in ornamental crops. Moderate to heavy damage was reported for chickweed, heavy damage for crabgrass and henbit, and moderate damage for Bermudagrass and bindweed. The infestation trend was upward for both Bermudagrass and bindweed.

TABLE 22.--Vegetables: Estimated extent and cost of chemical weed control, and States reporting effectiveness, usage trend, and need for better control methods, United States, 1959

State and region	Acreage treated		Average Cost per acre[1]		Acreage treated by--		Effectiveness of herbicides		Herbicide usage trend[2]	Need for better herbicides
	Pre-emergence	Post-emergence	Pre-emergence	Post-emergence	Farmers	Custom operators	Pre-emergence	Post-emergence		
	1,000 acres	1,000 acres	Dollars	Dollars	Pct.	Pct.				
Connecticut	9	1	5.00	5.00	98	2	Fair	Fair	Up	Some
Delaware										
Maine	2	1	4.00	4.00	90	10	Fair	Fair	Up	Some
Maryland	1	-	5.00	-	80	20	Fair	-	Up	Urgent
Massachusetts	7.5	1	5.00	3.00	85	15	Fair	Fair	Up	Some
New Hampshire	-	.5	-	-	100	0	-	Fair	Up	Some
New Jersey										
New York										
Pennsylvania										
Rhode Island	4	1	-	-	95	5	Good	Good	Up	Some
Vermont	-	.5	-	-	80	20	-	Good	Sta.	Some
West Virginia	3	1	10.00	10.00	90	10	Fair	Fair	Up	Urgent
Northeastern	26.5	6	5.58	5.50	84	16	1-Good 5-Fair	2-Good 5-Fair	7-Up 1-Sta.	2-Urgent 6-Some
Illinois										
Indiana	3.5	1	9.00	-	10	90	Fair	Fair	Sta.	Some
Iowa										
Kansas										
Michigan										
Minnesota										
Missouri										
Nebraska										
North Dakota										
Ohio										
South Dakota										
Wisconsin	-	75	4.20	2.00	90	10	Fair	Good	Up	Some
North Central	3.5	76	9.00	2.00	90	10	2-Fair	1-Good 1-Fair	1-Up 1-Sta.	2-Some
Alabama										
Arkansas	2	-	7.00	-	50	50	Fair	-	Up	Some
Florida	10	40	10.00	4.00	90	10	Good	Fair	Up	Urgent
Georgia										
Kentucky	1	-	8.00	-	75	25	Good	-	Up	Some
Louisiana										
Mississippi										
North Carolina										
Oklahoma										
South Carolina										
Tennessee										
Texas	-	50	-	6.00	90	10	-	Fair	Up	Urgent
Virginia	17.8	-	12.50	-	95	5	Fair	-	Up	Some
Southern	30.8	90	11.18	5.11	90	10	2-Good 2-Fair	2-Fair	5-Up	2-Urgent 3-Some
Arizona	-	9	-	8.00	70	30	-	Fair	Up	Urgent
California										
Colorado	0.05	1	20.00	12.00	100	0	-	Fair	Sta.	Some
Idaho	1	2	8.00	2.00	99	1	Good	Good	Up	Urgent
Montana										
Nevada										
New Mexico										
Oregon	10	20	5.00	5.00	25	75	Good	Good	Sta.	Urgent
Utah	.02	.08	7.00	5.00	95	5	Poor	Fair	Up	Urgent
Washington										
Wyoming										
Western	11.07	32.08	5.34	5.87	55	45	2-Good 1-Poor	2-Good 3-Fair	3-Up 2-Sta.	4-Urgent 1-Some
UNITED STATES	71.87	204.08	8.10	4.68	84	16	5-Good 9-Fair 1-poor	5-Good 11-Fair	16-Up 4-Sta	8-Urgent 12-Some

[1] Represents cost of herbicide custom applications and/or cost of farmer-applied herbicides.
[2] "Sta." refers to a report of stationary.

TABLE 23.--Vegetables: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Northeastern:[1]										
Lambsquarters	6	1	2	3	1	4	1	4	2	-
Pigweed	6	1	2	3	1	3	2	4	2	-
Barnyard grass	5	-	2	3	1	1	3	2	3	-
Chickweed	5	2	1	2	2	3	-	3	2	-
Ragweed	6	1	4	1	2	3	1	5	1	-
Crabgrass	6	2	3	1	3	2	1	2	4	-
Smartweed	5	1	3	1	2	2	1	3	2	-
Quackgrass	5	1	3	1	-	4	1	1	4	-
Purslane	6	1	4	1	1	4	1	3	3	-
Nutsedge	5	1	3	1	-	3	2	1	4	-
Henbit	2	1	-	1	1	1	-	2	-	-
Galinsoga	3	1	1	1	1	2	-	1	2	-
Bermudagrass	1	-	-	1	-	1	-	1	-	-
Foxtail	6	-	6	-	2	3	1	2	4	-
Canada-thistle	3	1	2	-	2	1	-	2	1	-
Common morning-glory	5	4	1	-	4	1	-	4	1	-
Wild mustard	5	4	1	-	4	1	-	3	1	1
Bindweed	3	3	-	-	3	-	-	3	-	-
Johnsongrass	2	2	-	-	2	-	-	2	-	-
Curly dock	1	1	-	-	1	-	-	1	-	-
North Central:[2]										
Crabgrass	1	-	-	1	-	-	1	-	1	-
Foxtail	1	-	-	1	-	-	1	-	1	-
Lambsquarters	1	-	-	1	-	-	1	1	-	-
Purslane	1	-	-	1	-	-	1	1	-	-
Pigweed	1	-	-	1	-	-	1	1	-	-
Quackgrass	1	-	-	1	-	-	1	1	-	-
Smartweed	1	-	-	1	-	-	1	1	-	-
Field bindweed	1	-	1	-	-	1	-	1	-	-
Barnyard grass	1	-	1	-	-	-	1	1	-	-
Canada-thistle	1	-	1	-	-	-	1	1	-	-
Chickweed	1	-	1	-	-	1	-	1	-	-
Ragweed	1	-	1	-	-	1	-	1	-	-
Wild mustard	1	-	1	-	-	1	-	1	-	-
Dodder	1	1	-	-	1	-	-	1	-	-
Henbit	1	1	-	-	1	-	-	1	-	-
Southern:[3]										
Crabgrass	6	-	1	5	1	-	5	4	2	-
Chickweed	4	1	1	2	1	1	2	1	3	-
Henbit	3	-	1	2	-	2	1	-	2	-
Johnsongrass	4	1	2	1	1	1	2	1	3	-
Lambsquarters	3	-	2	1	-	2	1	1	1	-
Foxtail	4	2	1	1	2	1	1	2	1	-
Pigweed	6	1	4	1	1	5	-	4	1	-
Bermudagrass	5	1	4	-	1	3	1	1	3	1
Nutsedge	5	1	4	-	1	2	2	2	2	1
Ragweed	5	1	3	1	3	2	-	5	-	-
Common morning-glory	6	3	3	-	3	3	-	5	1	-
Goosegrass	5	2	2	1	2	1	2	2	1	-
Purslane	5	2	3	-	1	4	-	3	1	-
Nightshade	1	-	1	-	1	-	-	-	1	-
Brachiaria	1	-	1	-	1	-	-	-	1	-
Stinkgrass	1	-	1	-	-	1	-	1	-	-
Cocklebur	4	3	1	-	3	1	-	4	-	-
Silverleaf nightshade	1	-	1	-	-	1	-	1	-	-

[1] The 6 States reporting were: Connecticut, Maine, Maryland, New Hampshire, Vermont, and West Virginia.

[2] The State reporting was Wisconsin.

TABLE 23.--Vegetables: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959--Continued

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Southern[3]--Con.										
Barnyard grass	2	2	-	-	2	-	-	1	-	-
Smartweed	1	1	-	-	1	-	-	1	-	-
Wild onion and wild garlic	1	1	-	-	1	-	-	1	-	-
Wild mustard	1	1	-	-	-	1	-	1	-	-
Smilax	1	1	-	-	1	-	-	-	1	-
Bigroot morning-glory	1	1	-	-	1	-	-	1	-	-
Western:[4]										
London rocket	1	-	-	1	-	1	-	1	-	-
Purslane	3	-	3	-	-	1	2	2	1	-
Lambsquarters	3	1	2	-	-	3	-	2	1	-
Pigweed	2	-	2	-	-	1	1	1	1	-
Field bindweed	2	1	1	-	1	1	-	1	1	-
Barnyard grass	2	1	1	-	1	1	-	1	1	-
Canada-thistle	2	1	1	-	1	1	-	2	-	-
Cocklebur	1	-	1	-	1	-	-	1	-	-
Foxtail	1	-	1	-	-	1	-	1	-	-
Nutsedge	1	-	1	-	-	-	1	-	1	-
Quackgrass	2	1	1	-	1	-	1	1	1	-
Smartweed	1	-	1	-	-	1	-	1	-	-
Wild oat	2	1	1	-	1	1	-	2	-	-
Dogfennel	1	-	1	-	-	1	-	1	-	-
Wild buckwheat	1	-	1	-	1	-	-	1	-	-
Sowthistle	1	-	1	-	1	-	-	1	-	-
Dwarf mallow	1	-	1	-	1	-	-	1	-	-
Sourclover	1	-	1	-	1	-	-	1	-	-
Bermudagrass	1	1	-	-	1	-	-	1	-	-
Crabgrass	1	1	-	-	1	-	-	1	-	-
Chickweed	1	1	-	-	1	-	-	1	-	-
Dodder	1	1	-	-	1	-	-	1	-	-
Ragweed	1	1	-	-	1	-	-	1	-	-
Wild onion and wild garlic	1	1	-	-	1	-	-	-	1	-

[3] The 6 States reporting were: Alabama, Arkansas, Kentucky, South Carolina, Texas, and Virginia.

[4] The 3 States reporting were: Arizona, Oregon, and Utah.

TABLE 24.--Potatoes: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Northeastern:[1]										
Ragweed	4	-	3	1	-	3	1	2	2	-
Smartweed	4	1	2	1	1	2	1	2	2	-
Wild mustard	4	1	2	1	2	2	-	4	-	-
Nutsedge	3	-	2	1	-	1	2	-	3	-
Crabgrass	1	-	-	1	1	-	-	-	1	-
Barnyard grass	4	-	4	-	-	4	-	1	3	-
Lambsquarters	4	-	4	-	-	3	1	2	2	-
Quackgrass	4	-	4	-	-	3	1	2	2	-
Pigweed	4	1	3	-	1	2	1	4	-	-
Foxtail	2	-	2	-	-	1	1	1	1	-
Canada-thistle	1	-	1	-	-	1	-	1	-	-
Field bindweed	2	2	-	-	-	2	-	2	-	-
Purslane	2	2	-	-	2	-	-	2	-	-
Common morning-glory	1	1	-	-	-	-	1	1	-	-
Curly dock	1	1	-	-	1	-	-	1	-	-
Chickweed	1	1	-	-	1	-	-	1	-	-
Dodder	1	1	-	-	-	-	1	-	1	-
Goosegrass	1	1	-	-	-	1	-	-	1	-

[1] The 4 States reporting were: Maine, Massachusetts, Pennsylvania, and Rhode Island.

North Central:[2]										
Foxtail	3	2	-	1	2	1	-	2	1	-
Pigweed	3	1	1	1	2	1	-	2	1	-
Quackgrass	2	-	1	1	1	1	-	1	1	-
Wild oat	1	-	-	1	-	1	-	-	1	-
Barnyard grass	3	2	1	-	3	-	-	3	-	-
Canada-thistle	2	1	1	-	1	1	-	-	1	1
Ragweed	2	1	1	-	1	1	-	1	-	1
Wild mustard	1	-	1	-	-	-	1	-	-	1
Sowthistle	1	-	1	-	-	1	-	-	1	-
Crabgrass	2	2	-	-	2	-	-	1	1	-
Lambsquarters	3	3	-	-	2	1	-	2	1	-
Chickweed	1	1	-	-	1	-	-	1	-	-
Smartweed	1	1	-	-	1	-	-	-	-	1

[2] The 3 States reporting were: Michigan, North Dakota, and Wisconsin.

Western:[3]										
Field bindweed	1	-	-	1	-	-	1	1	-	-
Barnyard grass	1	-	-	1	-	-	1	-	1	-
Canada-thistle	1	-	-	1	-	-	1	-	1	-
Dodder	1	-	1	-	1	-	-	-	1	-
Foxtail	1	-	1	-	-	1	-	-	1	-
Lambsquarters	1	-	1	-	-	1	-	-	1	-
Pigweed	1	-	1	-	-	1	-	-	1	-
Quackgrass	1	-	1	-	-	-	1	1	-	-
Wild oat	1	-	1	-	-	1	-	1	-	-
Nightshade	1	-	1	-	-	1	-	1	-	-
Witchgrass	1	-	1	-	-	1	-	1	-	-

[3] The State reporting was Idaho.

TABLE 25.--Sweet Corn: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Southern:[1]										
Johnsongrass	3	-	-	3	-	-	3	-	3	-
Pigweed	3	1	-	2	1	-	2	2	1	-
Cocklebur	3	-	2	1	-	2	1	2	1	-
Crabgrass	2	-	1	1	-	1	1	2	-	-
Common morning-glory	3	2	-	1	1	2	-	2	1	-
Foxtail	2	-	2	-	-	1	1	-	2	-
Field bindweed	1	-	1	-	-	-	1	-	1	-
Bermudagrass	2	-	2	-	1	1	-	1	1	-
Barnyard grass	1	-	1	-	-	1	-	-	1	-
Goosegrass	1	-	1	-	-	1	-	-	1	-
Lambsquarters	2	-	2	-	-	2	-	2	-	-
Nutsedge	2	-	2	-	-	2	-	-	2	-
Ragweed	2	-	2	-	-	2	-	2	-	-
Smartweed	2	1	1	-	1	1	-	2	-	-
Trumpetvine	1	-	1	-	-	1	-	-	1	-
Bigroot morning-glory	1	-	1	-	1	-	-	-	1	-
Red vine	1	-	1	-	1	-	-	-	1	-
Brachiaria	1	-	1	-	-	1	-	-	1	-
Wild cucumber	1	-	1	-	-	1	-	1	-	-
Wild sorghum	1	-	1	-	-	-	1	-	1	-
Nightshade	1	1	-	-	1	-	-	-	1	-

[1] The 3 States reporting were: Arkansas, Kentucky, and Texas.

TABLE 26.--Mint: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Western:[1]										
Quackgrass	2	-	1	1	-	1	1	-	2	-
Field bindweed	2	-	2	-	-	2	-	-	2	-
Curly dock	2	1	1	-	1	1	-	1	1	-
Smartweed	2	1	1	-	2	-	-	-	1	1
Canada-thistle	1	-	1	-	-	1	-	-	1	-
Chickweed	1	-	1	-	-	1	-	-	1	-
Lambsquarters	1	-	1	-	-	-	1	1	-	-
Nutsedge	1	-	1	-	-	1	-	-	1	-
Pigweed	1	-	1	-	-	-	1	-	1	-
Wild oat	1	-	1	-	-	1	-	1	-	-
Prickly lettuce	1	-	1	-	-	1	-	1	-	-
Weed bromegrass	1	1	-	-	1	-	-	-	1	-
Wild mustard	1	1	-	-	1	-	-	1	-	-

[1] The 2 States reporting were: Idaho and Oregon.

TABLE 27.--Fruits and Nuts: Estimated extent and cost of chemical weed control, and States reporting effectiveness, usage trend, and need for better control methods, United States, 1959

State and region	Acreage treated		Average cost per acre[1]		Acreage treated by--		Effectiveness of herbicides		Herbicide usage trend[2]	Need for better herbicides
	Pre-emergence	Post-emergence	Pre-emergence	Post emergence	Farmers	Custom operators	Pre-emergence	Post-emergence		
	1,000 acres	1,000 acres	Dollars	Dollars	Pct.	Pct.				
Connecticut	-	1.3	-	-	25	-	Fair	Fair	Up	Some
Vermont	-	.01	-	-	100	0	-	Good	Sta.	Urgent
West Virginia	-	.23	-	15.00	100	0	-	Fair	Up	Urgent
Northeastern	-	1.54	-	15.00	100	-	1-Fair	1-Good 2-Fair	2-Up 1-Sta.	2-Urgent 1-Some
Wisconsin	-	1.5	-	6.00	100	0	-	Fair	Up	Some
North Central	-	1.5	-	6.00	100	-	-	1-Fair	1-Up	1-Some
Alabama	-	0.1	-	10.00	100	-	-	Good	Up	Urgent
Virginia	-	.8	-	10.00	95	5	-	Fair	Up	Urgent
Southern	-	0.9	-	10.00	95	5	-	1-Good 1-Fair	2-Up	2-Urgent
Colorado	-	1.2	-	3.00	100	0	-	Fair	Up	Some
Idaho	-	.2	-	-	99	1	-	Fair	Sta.	Some
Utah	0.04	.09	10.00	7.00	100	0	Fair	Fair	Up	Urgent
Western	0.04	1.49	10.00	3.27	99	1	1-Fair	3-Fair	2-Up 1-Sta.	1-Urgent 2-Some
UNITED STATES	0.04	5.43	10.00	7.89	99	1	2-Fair	2-Good 7-Fair	7-Up 2-Sta.	5-Urgent 4-Some

[1] Represents cost of herbicide custom applications and/or cost of farmer-applied herbicides.
[2] "Sta." refers to a report of stationary.

TABLE 28.--Fruits and Nuts: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Northeastern:[1]										
Quackgrass	3	-	2	1	-	2	1	3	-	-
Crabgrass	2	-	1	1	-	1	1	1	1	-
Barnyard grass	1	-	-	1	-	-	1	-	1	-
Poison-ivy	2	1	-	1	2	-	-	1	-	1
Chickweed	2	1	1	-	1	1	-	-	2	-
Foxtail	1	-	1	-	-	1	-	-	1	-
Lambsquarters	1	-	1	-	-	1	-	-	1	-
Purslane	1	-	1	-	-	1	-	1	-	-
Pigweed	1	-	1	-	-	1	-	1	-	-
Ragweed	1	-	1	-	-	1	-	-	1	-
Smartweed	1	-	1	-	-	1	-	1	-	-
Heavy sod species	1	-	1	-	1	-	-	1	-	-
Canada-thistle	2	2	-	-	2	-	-	1	-	1
Common morning-glory	1	1	-	-	1	-	-	1	-	-
Field bindweed	1	1	-	-	1	-	-	-	1	-
Curly dock	1	1	-	-	1	-	-	-	1	-
Johnsongrass	1	1	-	-	1	-	-	1	-	-
Nutsedge	1	1	-	-	1	-	-	1	-	-
Wild Onion and wild garlic	1	1	-	-	1	-	-	1	-	-
Wild mustard	1	1	-	-	1	-	-	1	-	-

[1] The 3 States reporting were: Connecticut, Vermont, and West Virginia.

North Central:[2]										
Quackgrass	1	-	-	1	-	1	-	-	1	-
Ragweed	1	-	1	-	1	-	-	1	-	-
Pigweed	1	-	1	-	1	-	-	1	-	-
Purslane	1	-	1	-	1	-	-	1	-	-
Lambsquarters	1	-	1	-	1	-	-	1	-	-
Foxtail	1	-	1	-	1	-	-	-	1	-
Chickweed	1	-	1	-	1	-	-	-	1	-
Canada-thistle	1	1	-	-	1	-	-	1	-	-

[2] The State reporting was Wisconsin.

TABLE 28.--Fruits and Nuts: Number of States reporting degree of infestation, extent of damage and infestation trend of specified weeds, United States, 1959--Continued

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Southern:[3]										
Bermudagrass	2	1	1	-	-	2	-	2	-	-
Crabgrass	1	-	1	-	1	-	-	1	-	-
Johnsongrass	1	-	1	-	1	-	-	-	1	-
Nutsedge	1	-	1	-	1	-	-	1	-	-
Purslane	1	-	1	-	-	1	-	1	-	-
Quackgrass	1	-	1	-	1	-	-	-	1	-
Ragweed	1	-	1	-	-	1	-	1	-	-
Wild onion and wild garlic	1	-	1	-	-	1	-	1	-	-
Curly dock	1	1	-	-	1	-	-	-	1	-
Western:[4]										
Canada-thistle	2	-	1	1	-	2	-	-	2	-
Quackgrass	3	-	2	1	1	2	-	1	2	-
Ragweed	3	1	1	1	1	1	1	1	2	-
Bindweed	1	-	-	1	1	-	-	1	-	-
Barnyard grass	2	-	1	1	1	1	-	1	1	-
Punctureviné	1	-	-	1	1	-	-	-	1	-
Purslane	2	-	2	-	2	-	-	2	-	-
Pigweed	2	-	2	-	2	-	-	2	-	-
Foxtail	2	1	1	-	1	1	-	2	-	-
Wild oat	2	1	1	-	1	1	-	2	-	-
Smartweed	2	1	1	-	2	-	-	2	-	-
Rabbitbrush	1	-	1	-	-	-	1	-	1	-
London rocket	1	-	1	-	-	1	-	1	-	-
Nutsedge	1	-	1	-	-	-	1	1	-	-
Sprangletop	1	-	1	-	1	-	-	1	-	-
Witchgrass	1	-	1	-	1	-	-	1	-	-
Dwarf mallow	1	-	1	-	-	1	-	1	-	-
Sourclover	1	-	1	-	-	1	-	1	-	-
Sowthistle	1	-	1	-	-	1	-	1	-	-
Field bindweed	1	1	-	-	-	1	-	1	-	-
Bermudagrass	1	1	-	-	-	1	-	1	-	-
Cocklebur	1	1	-	-	1	-	-	1	-	-

[3] The 2 States reporting were: Alabama and Virginia.

[4] The 4 States reporting were: Arizona, Oregon, Utah, and Washington.

TABLE 29.--Strawberries: Estimated extent and cost of chemical weed control, and States reporting effectiveness, usage trend, and need for better control methods, United States, 1959

State and region	Acreage treated		Average cost per acre[1]		Acreage treated by--		Effectiveness of herbicides		Herbicide usage trend	Need for better herbicides
	Pre-emergence	Post-emergence	Pre-emergence	Post-emergence	Farmers	Custom operators	Pre-emergence	Post-emergence		
	1,000 acres	1,000 acres	Dollars	Dollars	Pct.	Pct.				
Northeastern---	(No reports received from the Northeastern States.)									
North Central--	(No reports received from the North Central States.)									
Alabama Arkansas--------- Florida Georgia Kentucky--------- Louisiana Mississippi North Carolina Oklahoma South Carolina Tennessee-------- Texas Virginia	-	2.5	-	8.00	0	100	Fair	-	Up	Some
	1	-	20.00	-	95	5	Fair	-	Up	Some
	1	.8	15.00	5.00	100	0	Fair	Fair	Up	Urgent
Southern-------	2	3.3	17.60	6.18	97	3	3-Fair	1-Fair	3-Up	1-Urgent 2-Some
Western--------	(No reports received from the Western States.)									
UNITED STATES--	2	3.3	17.60	6.18	97	3	3-Fair	1-Fair	3-Up	1-Urgent 2-Some

[1] Represents cost of herbicide custom applications and/or cost of farmer-applied herbicides.

TABLE 30.--Small Fruits and Berries: Number of states reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Southern:[1]										
Crabgrass	2	-	-	2	-	-	2	1	1	-
Chickweed	2	-	-	2	-	-	2	1	1	-
Brachiaria	1	-	-	1	-	-	1	-	1	-
Bermudagrass	1	-	-	1	-	-	1	-	1	-
Witchgrass	2	-	1	1	-	1	1	-	2	-
Pigweed	2	-	1	1	-	1	1	1	1	-
Henbit	2	-	1	1	-	1	1	1	1	-
Evening primrose	1	-	-	1	-	-	1	1	-	-
Purslane	2	1	1	-	1	1	-	2	-	-
Barnyard grass	1	-	1	-	-	1	-	-	1	-
Foxtail	1	-	1	-	-	1	-	-	1	-
Cranesbill	1	-	1	-	-	1	-	1	-	-
Spurge	1	-	1	-	-	1	-	-	1	-
Annual Bluegrass	1	-	1	-	-	1	-	1	-	-
Smilax	1	-	1	-	-	1	-	-	1	-
Johnsongrass	1	-	1	-	-	1	-	-	1	-
Ragweed	2	1	1	-	2	-	-	2	-	-
Smartweed	1	-	1	-	-	-	1	-	1	-
Weed bromegrass	1	-	1	-	-	1	-	-	1	-
Nightshade	1	-	1	-	-	1	-	-	1	-
Aquatics, submerged	1	-	1	-	1	-	-	-	1	-
Lambsquarters	2	2	-	-	2	-	-	1	1	-
Annual morning-glory	1	1	-	-	1	-	-	1	-	-
Curly dock	1	1	-	-	1	-	-	-	-	1
Goosegrass	1	1	-	-	1	-	-	1	-	-
Carpetweed	1	1	-	-	1	-	-	1	-	-
Sheppardspurse	1	1	-	-	1	-	-	1	-	-
Pepperweed	1	1	-	-	1	-	-	1	-	-
Red sorrel	1	1	-	-	-	1	-	-	1	-
Wild mustard	1	1	-	-	1	-	-	-	1	-
Cocklebur	1	1	-	-	1	-	-	1	-	-
Western:[2]										
Quackgrass	2	-	2	-	-	2	-	-	2	-
Canada-thistle	2	1	1	-	1	1	-	-	2	-
Pigweed	1	-	1	-	-	1	-	-	1	-
Lambsquarters	1	-	1	-	-	1	-	-	1	-
Chickweed	1	-	1	-	-	1	-	-	1	-
Weed bromegrass	1	-	1	-	-	1	-	-	1	-
Barnyard grass	1	-	1	-	-	1	-	-	1	-
Field bindweed	2	2	-	-	1	1	-	-	2	-
Bermudagrass	1	1	-	-	-	1	-	-	1	-
Nutsedge	1	1	-	-	1	-	-	-	1	-

[1] The 2 States reporting were: Arkansas and Kentucky.

[2] The 2 States reporting were: Oregon and Washington.

TABLE 31.--Ornamentals: Estimated extent and cost of chemical weed control, and States reporting effectiveness, usage trend, and need for better control methods, United States, 1959

State and region	Acreage treated		Average cost per acre[1]		Acreage treated by--		Effectiveness of herbicides		Herbicide usage trend[2]	Need for better herbicides
	Pre-emergence	Post-emergence	Pre-emergence	Post emergence	Farmers	Custom operators	Pre-emergence	Post emergence		
	1,000 acres	1,000 acres	Dollars	Dollars	Pct.	Pct.				
Connecticut										
Delaware										
Maine										
Maryland										
Massachusetts										
New Hampshire										
New Jersey										
New York										
Pennsylvania	-	1	-	15.00	95	5	-	Fair	Up	Urgent
Rhode Island										
Vermont	0.01	.04	-	-	50	50	Fair	Fair	Sta.	Some
West Virginia										
Northeastern	0.01	1.04	-	15.00	93	7	1-Fair	2-Fair	1-Up 1-Sta.	1-Urgent 1-Some
North Central	(No reports received from the North Central States.)									
Alabama										
Arkansas										
Florida	0.1	1	4.00	25.00	50	50	Fair	Poor	Up	Some
Georgia	-	.1	-	10.00	50	50	-	Fair	Up	Some
Kentucky	.1	-	15.00	-	100	0	Good	-	Up	Some
Louisiana										
Mississippi										
North Carolina										
Oklahoma										
South Carolina										
Tennessee										
Texas										
Virginia	-	.1	-	15.00	100	0	-	Fair	Up	Urgent
Southern	0.2	1.2	9.50	22.91	50	50	1-Good 1-Fair	2-Fair 1-Poor	4-Up	1-Urgent 3-Some
Western	(No reports received from the Western States.)									
UNITED STATES	0.21	2.24	9.50	19.23	70	30	1-Good 2-Fair	4-Fair 1-Poor	5-Up 1-Sta.	2-Urgent 4-Some

[1] Represents cost of herbicide custom applications and/or cost of nurseryman-applied, home-owner-applied herbicides.
[2] "Sta." refers to a report of stationary.

TABLE 32.--Ornamentals: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Northeastern:[1]										
Pigweed	3	-	1	2	1	1	1	2	1	-
Ragweed	3	-	1	2	1	1	1	1	2	-
Smartweed	4	3	-	1	2	1	1	2	1	1
Purslane	4	2	1	1	2	2	-	3	1	-
Lambsquarters	3	1	1	1	2	1	-	3	-	-
Crabgrass	4	-	3	1	2	1	1	3	1	-
Chickweed	4	1	3	-	3	-	1	1	2	1
Quackgrass	3	-	3	-	-	2	1	1	2	-
Foxtail	3	1	2	-	1	2	-	2	1	-
Common morning-glory	2	-	2	-	-	1	1	-	2	-
Field bindweed	3	2	1	-	2	1	-	2	1	-
Barnyard grass	2	1	1	-	1	1	-	-	1	1
Dodder	2	1	1	-	-	2	-	-	2	-
Nutsedge	3	2	1	-	2	1	-	1	2	-
Wild onion and wild garlic	2	1	1	-	1	1	-	-	2	-
Red sorrel	1	-	1	-	1	-	-	1	-	-
Canada-thistle	3	3	-	-	2	1	-	-	2	1
Wild mustard	3	3	-	-	2	1	-	2	1	-
Curly dock	1	1	-	-	1	-	-	-	1	-
North Central:[2]										
Crabgrass	1	-	-	1	-	-	1	1	-	-
Chickweed	1	-	-	1	-	-	1	-	1	-
Foxtail	1	-	-	1	-	-	1	-	1	-
Lambsquarters	1	-	-	1	-	-	1	1	-	-
Pigweed	1	-	-	1	-	-	1	1	-	-
Quackgrass	1	-	-	1	-	-	1	1	-	-
Field bindweed	1	-	1	-	-	1	-	1	-	-
Barnyard grass	1	-	1	-	-	1	-	1	-	-
Canada-thistle	1	-	1	-	-	-	1	-	1	-
Henbit	1	-	1	-	-	1	-	1	-	-
Purslane	1	-	1	-	-	1	-	1	-	-
Ragweed	1	-	1	-	-	1	-	1	-	-
Wild mustard	1	-	1	-	-	1	-	1	-	-
Dodder	1	1	-	-	1	-	-	1	-	-
Smartweed	1	1	-	-	1	-	-	1	-	-
Southern:[3]										
Chickweed	2	-	1	1	-	1	1	2	-	-
Crabgrass	1	-	-	1	-	-	1	1	-	-
Henbit	1	-	-	1	-	-	1	1	-	-
Bermudagrass	2	-	2	-	-	2	-	1	1	-
Field bindweed	1	-	1	-	-	1	-	-	1	-
Lambsquarters	1	1	-	-	1	-	-	1	-	-
Purslane	1	1	-	-	1	-	-	1	-	-
Ragweed	1	1	-	-	1	-	-	1	-	-

[1] The 5 States reporting were: Connecticut, Massachusetts, Pennsylvania, Vermont, and West Virginia.

[2] The State reporting was Wisconsin.

[3] The 2 States reporting were: Georgia and Kentucky.

V. LAWNS

Seventeen States estimated approximately 60,000 acres of lawn were treated with herbicides in 1959 at a total cost of almost $\$1\frac{1}{2}$ million (tables 1 and 33). Post-emergence herbicides, the usual treatment by far, were applied on 57,000 acres. The average cost per acre was $14.12 for the post-emergence treatments. About 80 percent of the total acreage was treated by farmers and other homeowners with their own equipment. Only about 20 percent of the acreage treated was applied by custom operators.

Pre-emergence and post-emergence treatments on lawns proved to be judged about equal in effectiveness (the post-emergence ones used more, however), each of the treatments being given an approximate equal assignment of good and fair ratings. All but 1 of 19 States reported an increasing use of lawn herbicides. Seven of 17 States reporting a conspicuous need for better herbicides indicated the need was urgent; an additional 3 States reported a little need.

Crabgrass was rated as the most important lawn weed in all regions except the western region (table 34). Wild onion and wild garlic ranked next to crabgrass in importance in the northeastern and southern regions. An increase in chickweed infestations in these two regions also appears noteworthy.

Some other species listed as important problems in lawns in the Northeastern States were Bermudagrass, plantain, dandelion, knotweed, quackgrass, foxtail, and nimblewill.

In the southern region important weed species besides crabgrass, wild onion and wild garlic, and chickweed, were henbit, nutsedge, Dallisgrass, cudweed, dandelion, goosegrass, Bermudagrass, curly dock, foxtail, lambsquarters, red sorrel, plantain, dogfennel, cocklebur, purslane, and quackgrass.

In the western region important weed species were dandelion, nutsedge, Bermudagrass, plantain, barnyard grass, chickweed, annual bluegrass, black medic, creeping bentgrass, and knotweed.

TABLE 33.--Lawns: Estimated extent and cost of chemical weed control, and States reporting effectiveness, usage trend, and need for better control methods, United States, 1959

State and region	Acreage treated		Average cost per acre[1]		Acreage treated by--		Effectiveness of herbicides		Herbicide usage trend[2]	Need for better herbicides
	Pre-emergence	Post-emergence	Pre-emergence	Post-emergence	Farmers	Custom operators	Pre-emergence	Post-emergence		
	1,000 acres	1,000 acres	Dollars	Dollars	Pct.	Pct.				
Connecticut										
Delaware										
Maine										
Maryland	-	-	-	1.25	90	10	-	Fair	Up	Some
Massachusetts	-	3	-	2.00	100	0	-	Good	Up	Little
New Hampshire										
New Jersey										
New York										
Pennsylvania	-	8	-	10.00	75	25	-	Good	Up	Urgent
Rhode Island										
Vermont	-	.25	-	-	50	50	-	Good	Up	Some
West Virginia	-	1.25	-	25.00	75	25	-	Good	Up	Some
Northeastern	-	12.5	-	9.75	80	20	-	4-Good 1-Fair	5-Up	1-Urgent 3-Some 1-Little
Illinois										
Indiana										
Iowa	-	1	-	1.00	5	95	-	Good	Up	Little
Kansas										
Michigan										
Minnesota										
Missouri										
Nebraska[3]	1	10	350.00	25.00	90	10	Good	Good	Up	Some
North Dakota										
Ohio										
South Dakota										
Wisconsin										
North Central	1	11	350.00	23.63	82	18	1-Good	2-Good	2-Up	1-Some 1-Little
Alabama	-	-	-	3.00	-	-	-	-	-	-
Arkansas	-	0.2	-	25.00	75	25	-	Fair	Up	Urgent
Florida	0.5	5	100.00	40.00	80	20	Fair	Poor	Up	Urgent
Georgia	-	1	-	5.00	60	40	-	Fair	Up	Some
Kentucky	-	-	-	-	98	2	Good	-	Up	Urgent
Louisiana										
Mississippi	1	-	-	4.00	-	-	Fair	-	Up	Some
North Carolina	-	-	-	-	-	-	Poor	-	-	Some
Oklahoma										
South Carolina										
Tennessee	-	1	-	5.00	80	20	-	Good	Up	Some
Texas										
Virginia	-	16	-	10.00	90	10	-	Fair	Up	Urgent
Southern	1.5	23.2	100.00	16.06	86	14	1-Good 2-Fair 1-Poor	1-Good 3-Fair 1-Poor	7-Up	4-Urgent 4-Some
Arizona	-	4	-	6.00	50	50	-	Poor	Up	Urgent
California										
Colorado	-	5	-	2.50	95	5	-	Good	Sta.	Little
Idaho	-	-	-	-	85	15	-	-	-	-
Montana										
Nevada	-	.5	-	3.00	100	0	-	Fair	Up	Some
New Mexico	-	.3	-	10.00	90	10	-	Fair	Up	Urgent
Oregon										
Utah	0.05	.5	-	25.00	90	10	-	Fair	Up	Some
Washington										
Wyoming	-	-	-	5.00	90	10	-	-	-	-
Western	0.05	10.3	-	6.18	77	23	-	1-Good 3-Fair 1-Poor	4-Up 1-Sta.	2-Urgent 2-Some 1-Little
UNITED STATES	2.55	57.3	266.66	14.12	82	18	2-Good 2-Fair 1-Poor	8-Good 7-Fair 2-Poor	18-Up 1-Sta.	7-Urgent 10-Some 3-Little

[1] Represents cost of herbicide custom applications and/or cost of property-owner-applied herbicides.
[2] "Sta." refers to a report of stationary.
[3] Does not include parks, business establishments, golf courses.

TABLE 34.--Lawns: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Northeastern:[1]										
Crabgrass	6	-	3	3	-	3	3	1	5	-
Wild onion and wild garlic	3	1	1	1	1	1	1	-	3	-
Bermudagrass	1	-	-	-	-	-	1	-	1	-
Chickweed	5	1	4	-	2	3	-	2	3	-
Plantain	5	1	4	-	2	3	-	3	1	1
Dandelion	4	-	4	-	1	3	-	2	1	1
Knotweed	2	-	2	-	-	2	-	1	1	-
Quackgrass	5	4	1	-	5	-	-	3	1	1
Foxtail	2	1	1	-	1	1	-	1	1	-
Nimblewill	1	-	1	-	-	1	-	-	1	-
Henbit	2	2	-	-	2	-	-	2	-	-
Ragweed	2	2	-	-	2	-	-	1	-	1
Canada-thistle	1	1	-	-	1	-	-	-	-	1
Curly dock	1	1	-	-	1	-	-	-	1	-
Fleabane	1	1	-	-	1	-	-	1	-	-
Hawkweed	1	1	-	-	1	-	-	1	-	-
Red sorrel	1	1	-	-	1	-	-	1	-	-
Oxalis	1	1	-	-	1	-	-	1	-	-
Yarrow	1	1	-	-	1	-	-	1	-	-
Witchgrass	1	1	-	-	1	-	-	1	-	-
North Central:[2]										
Crabgrass	1	-	1	-	-	-	1	-	1	-
Chickweed	1	1	-	-	1	-	-	1	-	-
Southern:[3]										
Crabgrass	5	-	-	5	-	-	5	3	2	-
Wild onion and wild garlic	5	-	2	3	1	1	3	3	2	-
Henbit	5	1	2	2	2	1	2	4	1	-
Nutsedge	5	2	2	1	2	1	2	3	2	-
Chickweed	4	-	3	1	-	2	2	2	2	-
Dallisgrass	2	-	1	1	-	1	1	1	1	-
Cudweed	1	-	-	1	-	-	1	-	1	-
Dandelion	2	1	-	1	1	1	-	1	1	-
Goosegrass	3	1	2	-	2	-	1	2	1	-
Bermudagrass	3	2	1	-	1	2	-	2	1	-
Curly dock	3	2	1	-	2	1	-	1	2	-
Foxtail	2	1	1	-	1	1	-	2	-	-
Lambsquarters	2	1	1	-	1	1	-	2	-	-
Red sorrel	2	1	1	-	1	1	-	2	-	-
Plantain	2	1	1	-	1	1	-	2	-	-
Dogfennel	1	-	1	-	-	1	-	-	1	-
Cocklebur	1	-	1	-	-	1	-	-	1	-
Purslane	1	-	1	-	-	1	-	1	-	-
Quackgrass	1	-	1	-	-	-	1	-	1	-
Field bindweed	1	1	-	-	1	-	-	1	-	-
Barnyard grass	1	1	-	-	1	-	-	1	-	-
Wild mustard	1	1	-	-	1	-	-	1	-	-
Chicory	1	1	-	-	1	-	-	1	-	-
Sandbur	1	1	-	-	1	-	-	-	1	-
Knotweed	1	1	-	-	1	-	-	-	1	-
Mugwort	1	1	-	-	1	-	-	1	-	-
Star-of-Bethlehem	1	1	-	-	1	-	-	-	1	-

[1] The 6 States reporting were: Connecticut, Massachusetts, Maryland, New Hampshire, Vermont, and West Virginia.

[2] The State reporting was South Dakota.

[3] The 5 States reporting were: Alabama, Arkansas, Georgia, Kentucky, and Virginia.

TABLE 34.--Lawns: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959--Continued

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Western:[4]										
Dandelion	2	-	1	1	-	2	-	1	-	1
Nutsedge	1	-	-	1	-	-	1	-	1	-
Bermudagrass	1	-	-	1	-	-	1	1	-	-
Plantain	2	-	2	-	-	2	-	1	-	1
Barnyard grass	1	-	1	-	-	1	-	1	-	-
Chickweed	1	-	1	-	-	1	-	1	-	-
Annual bluegrass	2	1	1	-	1	1	-	1	1	-
Black medic	1	-	1	-	1	-	-	1	-	-
Creeping bentgrass	1	-	1	-	-	1	-	-	1	-
Knotweed	2	1	1	-	-	2	-	1	1	-
Field bindweed	1	1	-	-	-	1	-	1	-	-
Crabgrass	1	1	-	-	-	1	-	-	1	-
Henbit	1	1	-	-	1	-	-	1	-	-
Pigweed	1	1	-	-	1	-	-	1	-	-
Quackgrass	1	1	-	-	1	-	-	1	-	-

[4] The 3 States reporting were: Idaho, New Mexico, and Utah.

VI. HAY

Information from 20 States showed that post-emergence herbicides were used on 272,000 acres of hay crops in 1959 at a cost in excess of $1\frac{1}{2}$ million (tables 1 and 35). The average cost of these treatments per acre was $6.21. Farmers applied 81 percent of the two types of herbicide.

Although 10 out of 18 States reported good effectiveness of herbicides for weed control in hay crops, 8 reported an urgent need for better herbicides. Six States reported fair effectiveness and 2 poor. The herbicide usage trend was up according to 14 States and stationary according to 4.

The most urgent weed problems in hay crops in the Northeastern States were quackgrass, pigweed, lambsquarters, barnyard grass, chickweed, dandelion, ragweed, bedstraw, wild carrot, wild mustard, nutsedge, foxtail, curly dock, and Canada-thistle (table 36).

In the north-central region the most important weed species in hay crops were white cockle, wild mustard, weed bromegrass, kochia, bindweed, wild carrot, foxtail, alyssum, pigweed, quackgrass, dodder, curly dock, and velvetleaf.

In the southern region the most important weeds in hay crops were crabgrass, chickweed, Bermudagrass, henbit, Johnsongrass, wild onion and wild garlic, ragweed, and curly dock.

In the West the most important weeds in hay production were barnyard grass, foxtail, ragweed, wild mustard, London rocket, bindweed, dodder, Johnsongrass, and weed bromegrass.

TABLE 35.--Hay: Estimated extent and cost of chemical weed control, and States reporting effectiveness, usage trend, and need for better control methods, United States, 1959

State and region	Acreage treated		Average cost per acre[1]		Acreage treated by--		Effectiveness of herbicides		Herbicide usage trend[2]	Need for better herbicides
	Pre-emergence	Post-emergence	Pre-emergence	Post-emergence	Farmers	Custom operators	Pre-emergence	Post-emergence		
	1,000 acres	1,000 acres	Dollars	Dollars	Pct.	Pct.				
Connecticut	-	-	-	-	-	-	-	Fair	-	-
Delaware										
Maine										
Maryland	-	30	-	4.00	70	30	-	Fair	Sta.	Some
Massachusetts	-	5	-	3.00	90	10	-	Good	Up	Some
New Hampshire										
New Jersey										
New York										
Pennsylvania	-	22	-	3.75	95	5	-	Good	Up	Urgent
Rhode Island	0.1	1	-	-	-	-	Good	Good	Up	Some
Vermont	-	.1	-	-	-	-	-	Good	Up	Urgent
West Virginia	-	.5	-	4.00	90	10	-	Good	Up	Some
Northeastern	0.1	58.6	-	3.82	81	19	1-Good	5-Good 2-Fair	5-Up 1-Sta.	2-Urgent 4-Some
Illinois										
Indiana										
Iowa										
Kansas										
Michigan	-	10	-	3.50	80	20	-	Good	Up	Some
Minnesota	-	65	-	9.00	95	5	-	Fair	Sta.	Urgent
Missouri										
Nebraska										
North Dakota										
Ohio										
South Dakota										
Wisconsin	-	5	-	1.50	70	30	-	Fair	Up	Urgent
North Central	-	80	-	7.84	92	8	-	1-Good 2-Fair	2-Up 1-Sta.	2-Urgent 1-Some
Alabama										
Arkansas	-	5	-	2.50	100	0	-	Good	Up	Urgent
Florida										
Georgia										
Kentucky	-	2	-	2.50	95	5	-	-	Up	Urgent
Louisiana										
Mississippi										
North Carolina										
Oklahoma										
South Carolina	-	15	-	-	-	-	-	-	-	-
Tennessee										
Texas										
Virginia	-	35	-	8.50	50	50	-	Good	Up	Urgent
Southern	-	57	-	7.50	58	42	-	2-Good	3-Up	3-Urgent
Arizona	-	1	-	5.00	100	0	-	Good	Sta.	Some
California										
Colorado	-	15	-	5.00	80	20	-	Fair	Up	Some
Idaho	-	.5	-	-	90	10	-	Poor	Up	Little
Montana										
Nevada										
New Mexico	-	10	-	3.50	90	10	-	Good	Up	Some
Oregon	-	50	-	-	-	-	-	-	-	-
Utah	0.1	.2	-	5.00	90	10	-	Poor	Sta.	Urgent
Washington										
Wyoming	-	.1	-	3.00	100	0	-	Fair	Up	Some
Western	0.1	76.8	-	4.42	85	15	-	2-Good 2-Fair 2-Poor	4-Up 2-Sta.	1-Urgent 4-Some 1-Little
UNITED STATES	0.2	272.4	-	6.21	81	19	1-Good	10-Good 6-Fair 2-Poor	14-Up 4-Sta.	8-Urgent 9-Some 1-Little

[1] Represents cost of custom application and/or cost of farmer-applied herbicides.
[2] "Sta." refers to a report of stationary.

TABLE 36.--Hay: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Northeastern:[1]										
Quackgrass	6	1	2	3	-	2	4	3	3	-
Pigweed	4	-	3	1	-	3	1	4	-	-
Lambsquarters	5	1	3	1	1	3	1	4	1	-
Barnyard grass	3	-	1	2	-	1	2	1	2	-
Chickweed	5	2	2	1	2	2	1	2	2	-
Dandelion	2	-	1	1	1	1	-	1	1	-
Ragweed	4	-	3	1	-	3	1	3	1	-
Bedstraw	2	-	1	1	-	2	-	-	2	-
Wild carrot	3	1	1	1	1	2	-	1	2	-
Wild mustard	6	1	5	-	1	4	1	2	4	-
Nutsedge	4	-	4	-	-	2	2	-	4	-
Foxtail	4	1	3	-	1	3	-	4	-	-
Curly dock	7	3	4	-	4	2	1	4	2	1
Canada-thistle	5	1	4	-	1	4	-	-	4	-
Smartweed	4	1	3	-	1	3	-	2	2	-
Weed bromegrass	3	1	2	-	1	1	1	2	1	-
Crabgrass	3	2	1	-	2	1	-	2	1	-
White cockle	2	-	2	-	-	1	1	1	1	-
Plantain	2	-	2	-	-	2	-	1	1	-
Common morning-glory	3	2	1	-	1	1	1	2	1	-
Field bindweed	2	1	1	-	-	2	-	2	-	-
Henbit	1	-	1	-	1	-	-	1	-	-
Juniper	1	-	1	-	-	1	-	1	-	-
Wild onion and wild garlic	2	1	1	-	1	1	-	1	1	-
Wintercress	1	-	1	-	-	1	-	-	-	-
Knawel	1	-	1	-	1	-	-	-	1	-
Dodder	3	3	-	-	2	1	-	3	-	-
Purslane	2	2	-	-	2	-	-	2	-	-
Chicory	2	2	-	-	2	-	-	1	-	1
Goosegrass	1	1	-	-	1	-	-	1	-	-
Fleabane	1	1	-	-	1	-	-	1	-	-
Bullthistle	1	1	-	-	1	-	-	1	-	-
Buttercup	1	1	-	-	1	-	-	1	-	-
Hawkweed	1	1	-	-	1	-	-	1	-	-
Yellow rocket	1	1	-	-	1	-	-	1	-	-
North Central:[2]										
White cockle	3	-	1	2	-	1	2	-	3	-
Wild mustard	4	1	2	1	1	2	1	2	2	-
Weed bromegrass	4	2	1	1	1	1	2	3	1	-
Kochia	3	1	1	1	-	2	1	1	2	-
Bindweed	-	1	-	1	1	-	1	1	1	-
Wild carrot	1	-	-	1	-	1	-	-	1	-
Foxtail	5	1	4	-	-	4	1	4	1	-
Alyssum	3	-	3	-	-	2	1	-	3	-
Pigweed	4	2	2	-	-	4	-	4	-	-
Quackgrass	4	2	2	-	-	4	-	3	1	-
Ragweed	3	1	2	-	1	2	-	3	-	-
Lambsquarters	3	1	2	-	1	2	-	3	-	-
Barnyard grass	3	1	2	-	2	1	-	3	-	-
Dodder	5	4	1	-	1	4	-	4	-	1
Curly dock	5	4	1	-	3	1	1	4	1	-
Canada-thistle	2	1	1	-	1	1	-	2	-	-
Wild oat	1	-	1	-	-	1	-	1	-	-
Horsenettle, Carolina	1	-	1	-	-	1	-	1	-	-
Sowthistle	2	1	1	-	-	2	-	1	1	-
Velvetleaf	1	-	1	-	-	-	1	-	1	-
Spotted knapweed	1	-	1	-	-	1	-	-	1	-
Buckhorn	1	-	1	-	-	1	-	1	-	-
Cinquefoil	1	1	-	-	-	1	-	-	1	-

[1] The 7 States reporting were: Maine, Maryland, Massachusetts, New Hampshire, Pennsylvania, Vermont, and West Virginia. One State made no report on infestation trend.

TABLE 36.--Hay: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959--Continued

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
North Central[2]--Con.										
Pennycress	1	1	-	-	-	1	-	-	1	-
Dandelion	1	1	-	-	1	-	-	1	-	-
Sunflower	1	1	-	-	-	1	-	-	1	-
Smartweed	3	3	-	-	1	2	-	3	-	-
Crabgrass	3	3	-	-	2	1	-	3	-	-
Chickweed	2	2	-	-	1	1	-	2	-	-
Nutsedge	1	1	-	-	1	-	-	1	-	-
Southern:[3]										
Crabgrass	5	1	2	2	1	3	1	3	2	-
Chickweed	5	1	3	1	2	2	1	1	4	-
Bermudagrass	3	-	3	-	-	2	1	-	3	-
Henbit	4	2	2	-	3	1	-	2	2	-
Johnsongrass	4	1	3	-	-	2	2	-	4	-
Wild mustard	3	1	2	-	-	3	-	2	1	-
Wild onion and wild garlic	3	1	1	1	2	1	-	1	2	-
Ragweed	3	-	2	1	1	2	-	1	2	-
Pigweed	3	2	1	-	2	1	-	1	2	-
Foxtail	3	2	1	-	2	1	-	1	2	-
Barnyard grass	2	1	1	-	1	1	-	1	1	-
Curly dock	2	-	1	1	-	2	-	-	2	-
Red sorrel	2	1	1	-	-	2	-	-	2	-
Broomsedge	1	-	1	-	-	1	-	-	1	-
Sumpweed	1	-	1	-	-	1	-	-	1	-
Goosegrass	2	2	-	-	2	-	-	2	-	-
Field bindweed	1	1	-	-	1	-	-	1	-	-
Dodder	2	2	-	-	2	-	-	1	1	-
Lambsquarters	2	2	-	-	2	-	-	1	1	-
Purslane	1	1	-	-	1	-	-	-	1	-
Smartweed	2	1	1	-	1	1	-	1	1	-
Speedwell	2	-	2	-	-	2	-	-	2	-
Plantain	1	1	-	-	-	1	-	-	1	-
Shepherdspurse	1	1	-	-	1	-	-	-	1	-
Horsenettle, Carolina	1	1	-	-	1	-	-	-	1	-
Corn gromwell	1	-	1	-	-	1	-	-	1	-
Quackgrass	1	-	1	-	-	1	-	-	1	-
Knawel	1	1	-	-	1	-	-	-	1	-
Nutsedge	1	1	-	-	1	-	-	1	-	-
Western:[4]										
Barnyard grass	3	2	-	1	2	-	1	3	-	-
Foxtail	2	1	-	1	1	-	1	2	-	-
Ragweed	2	-	1	1	-	1	1	2	-	-
Wild mustard	2	-	1	1	-	1	1	1	1	-
London rocket	1	-	-	1	-	1	-	1	-	-
Field bindweed	4	2	2	-	2	2	-	2	2	-
Dodder	5	3	2	-	2	3	-	4	1	-
Johnsongrass	2	-	-	2	-	2	-	2	-	-
Weed bromegrass	4	2	2	-	2	2	-	1	3	-
Bermudagrass	1	-	1	-	-	1	-	1	-	-
Canada-thistle	1	-	1	-	-	1	-	-	1	-
Nutsedge	1	-	1	-	-	1	-	1	-	-
Quackgrass	2	1	1	-	1	1	-	2	-	-
Smartweed	1	-	1	-	-	1	-	1	-	-
Sandbur	1	-	1	-	-	-	1	1	-	-

[2] The 8 States reporting were: Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, and Wisconsin. Reports from some States were for crops of alfalfa, clover, and forage seeds.

[3] The 5 States reporting were: Alabama, Arkansas, Georgia, Tennessee, and Virginia.

TABLE 36.--Hay: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959--Continued

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Western[4]--Con.										
Curly dock	2	2	-	-	2	-	-	2	-	-
Lambsquarters	1	1	-	-	1	-	-	1	-	-
Wild oat	1	1	-	-	1	-	-	1	-	-
Povertyweed	1	1	-	-	1	-	-	1	-	-
Dwarf mallow	1	1	-	-	1	-	-	1	-	-
Whitetop	1	1	-	-	1	-	-	1	-	-
Russian knapweed	1	1	-	-	1	-	-	-	1	-

[4] The 5 States reporting were: Arizona, Colorado, Montana, New Mexico, and Oregon. Reports were for 1 hay crop only, alfalfa.

VII. PASTURES

Approximately 350 million acres of land are pastured in the eastern half of the United States. Weeds are a problem in all of this land, either during the period of establishment of forage crops or during production of pasturage.

Nearly $2\frac{1}{2}$ million acres of pasture were sprayed with herbicides in 1959 at a total cost of over $\$5\frac{3}{4}$ million (tables 1 and 37). The post-emergence treatments were much preferred, accounting for all but 30,000 acres of the total grown. The average cost per acre of post-emergence treatment was $2.43. Seventy-four percent of the total acreage treated by both methods was treated by farmers.

Nineteen States reported good weed control effectiveness through use of herbicides, 15 reported fair effectiveness, and only 1 reported poor results. Thirty-one States reported that herbicide usage in pastures was increasing, while 3 indicated that it was stationary. Five of the 34 States indicated an urgent need for better herbicides, and 24 indicated that there was some need.

Thirty-two States reported weed species that present problems in pastures (table 38). Many problems species were listed. Forty-four weeds were listed in the Northeast, 50 in the north-central region, 59 in the southern region, and 25 in the West. The following were the most serious weeds in pastures in the northeastern region: Quackgrass, ragweed, wild onion and wild garlic, oakbrush, dandelion, chickweed, pigweed, lambsquarters, wild mustard, plantain, locust, poison-ivy, sumac, brambles, thornapple, dogwood, laurel, Canada-thistle, curly dock, nutsedge, foxtail, smartweed, barnyard grass, and buttercup.

In the north-central region the most important weed species were ragweed, quackgrass, bindweed, Canada-thistle, wild onion and wild garlic, weed bromegrasses, kochia, gumweed, yarrow, foxtail, curly dock, crabgrass, ironweed, sagebrush, thistle, goldenrod, buckbrush, and dodder.

In the southern region the more important weed species listed were wild onion, and wild garlic, bitterweed, curly dock, broomsedge, crabgrass, Bermudagrass, foxtail, oakbrush, woody plants, Cherokee rose, henbit, chickweed, wild mustard, dogfennel, and pigweed.

In the western region the more important weed species listed were curly dock, Canada-thistle, smartweed, sagebrush, wild mustard, tansy ragwort, buttercup, tussocks, bindweed, and ragweed.

These appraisals on importance of pasture weeds are based on the number of States reporting heavy-to-moderate degree of infestation and heavy damage. A number of species were important in more than one region. The several regions reported many weeds to be increasing.

Table 38, A, gives the problem weeds in irrigated pastures in two western States. Quackgrass and barnyard grass were the more serious weeds regarding infestation and damage, but they were not increasing, as were others.

TABLE 37.--Pastures: Estimated extent and cost of chemical weed control, and States reporting effectiveness, usage trend, and need for better control methods, United States, 1959

State and region	Acreage treated		Average cost per acre[1]		Acreage treated by--		Effectiveness of herbicides		Herbicide usage trend[2]	Need for better herbicides
	Pre-emergence	Post-emergence	Pre-emergence	Post-emergence	Farmers	Custom operators	Pre-emergence	Post-emergence		
	1,000 acres	1,000 acres	Dollars	Dollars	Pct.	Pct.				
Connecticut	-	-	-	-	-	-	-	Fair	-	-
Delaware										
Maine										
Maryland	-	15	-	1.50	80	20	-	Fair	Up	Some
Massachusetts	-	5	-	4.00	90	10	-	Good	Up	Some
New Hampshire										
New Jersey										
New York										
Pennsylvania	-	25	-	3.25	90	10	-	Fair	Up	Urgent
Rhode Island	0.1	1	-	-	95	5	Good	Good	Up	Some
Vermont	-	1	-	-	75	25	-	Good	Up	Some
West Virginia	-	25	-	4.00	90	10	-	Good	Up	Some
Northeastern	0.1	72	-	3.20	88	12	1-Good	4-Good 3-Fair	6-Up	1-Urgent 5-Some
Illinois	-	100	-	1.25	90	10	-	Good	Up	Little
Indiana										
Iowa	-	500	-	2.00	90	10	-	Good	Up	Little
Kansas	-	300	-	4.00	5	95	-	Fair	Up	Urgent
Michigan	-	15	-	3.00	80	20	-	Good	Up	Some
Minnesota	-	95	-	2.50	95	5	-	Fair	Sta.	Some
Missouri	-	50	-	2.25	95	5	-	Fair	Up	Some
Nebraska	-	80	-	2.00	75	25	-	Good	Up	Some
North Dakota	-	50	-	2.00	100	0	-	Fair	Up	Some
Ohio										
South Dakota	-	100	-	1.60	90	10	-	Good	Up	Some
Wisconsin	-	100	-	2.00	80	20	-	Good	Up	Urgent
North Central		1,390	-	2.40	71	29	-	6-Good 4-Fair	9-Up 1-Sta.	2-Urgent 6-Some 2-Little
Alabama	-	100	-	1.50	90	10	-	Fair	Up	Some
Arkansas	-	250	-	2.50	75	25	-	Good	Up	Little
Florida	-	10	-	3.00	50	50	-	Fair	Up	Some
Georgia	-	100	-	3.00	75	25	-	Fair	Up	Some
Kentucky	-	100	-	2.25	95	5	-	Fair	Up	Urgent
Louisiana	-	70	-	1.50	90	10	-	Good	Up	Some
Mississippi	30	100	1.00	1.00	70	30	Good	Good	Up	Urgent
North Carolina	-	10	-	-	-	-	-	Poor	Up	Some
Oklahoma										
South Carolina	-	10	-	.75	-	-	-	Good	Up	Some
Tennessee	-	20	-	2.00	90	10	-	Good	Up	Some
Texas										
Virginia	-	100	-	4.75	50	50	-	Good	Up	Some
Southern	30	870	1.00	2.39	77	23	1-Good	6-Good 4-Fair 1-Poor	11-Up	2-Urgent 8-Some 1-Little
Arizona	-	3	-	2.50	100	0	-	Good	Up	Little
California										
Colorado	-	25	-	3.00	75	25	-	Good	Sta.	Little
Idaho	-	5	-	2.50	98	2	-	Good	Up	Some
Montana										
Nevada	-	2	-	4.50	50	50	-	Fair	Up	Some
New Mexico	-	1	-	4.00	100	0	-	Fair	Up	Some
Oregon										
Utah	-	1	-	2.00	90	10	-	Fair	Sta.	Some
Washington										
Wyoming	-	1	-	3.00	-	-	-	Fair	Up	Some
Western	-	38	-	2.97	80	20	-	3-Good 4-Fair	5-Up 2-Sta.	5-Some 2-Little
UNITED STATES	30.1	2,370	1.00	2.43	74	26	2-Good	19-Good 15-Fair 1-Poor	31-Up 3-Sta.	5-Urgent 24-Some 5-Little

[1] Represents cost of herbicide custom applications and/or cost of farmer-applied herbicides.
[2] "Sta." refers to a report of stationary.

TABLE 38.--Pastures: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Northeastern:[1]										
Quackgrass	6	3	2	1	2	1	3	3	3	-
Ragweed	5	2	2	1	2	3	-	3	2	-
Wild onion and wild garlic	4	1	2	1	1	2	1	1	2	-
Oakbrush	3	-	2	1	-	2	1	2	1	-
Dandelion	3	-	2	1	-	2	1	-	1	2
Chickweed	4	1	2	1	1	2	1	1	3	-
Pigweed	3	-	2	1	-	3	-	3	-	-
Lambsquarters	3	1	1	1	1	2	-	3	-	-
Wild mustard	3	-	2	1	-	2	1	2	1	-
Plantain	1	-	-	1	-	1	-	-	-	1
Locust	1	-	-	1	-	-	1	-	-	1
Poison-ivy	1	-	-	1	-	-	1	-	-	1
Sumac	1	-	-	1	-	-	1	-	-	1
Brambles	1	-	-	1	-	-	1	-	-	1
Thornapple	1	-	-	1	-	-	1	-	-	1
Dogwood	1	-	-	1	-	-	1	-	-	1
Laurel	1	-	-	1	-	-	1	-	-	1
Barnyard grass	2	1	-	1	1	-	1	1	-	1
Canada-thistle	8	4	4	-	3	4	-	2	4	1
Curly dock	8	4	4	-	5	3	-	5	2	-
Nutsedge	5	1	4	-	1	2	2	-	5	-
Foxtail	5	1	4	-	1	2	2	4	1	-
Smartweed	5	2	3	-	2	3	-	4	-	-
Milkweed	1	-	1	-	-	1	-	1	-	-
Bullthistle	2	1	1	-	2	-	-	2	-	-
Pokeweed	1	-	1	-	1	-	-	1	-	-
Wild cherry	1	-	1	-	-	1	-	1	-	-
Buttercup	3	2	1	-	1	1	1	1	1	1
Spotted knapweed	1	-	1	-	-	-	1	-	1	-
Water hemlock	1	-	1	-	-	1	-	1	-	-
Buckhorn	1	-	1	-	-	1	-	-	1	-
Bermudagrass	1	-	1	-	1	-	-	-	1	-
Hawkweed	1	-	1	-	-	1	-	1	-	-
Horsenettle, Carolina-	1	-	1	-	-	1	-	1	-	-
Juniper	1	-	1	-	-	1	-	1	-	-
Weed bromegrass	1	-	1	-	-	1	-	1	-	-
Annual morning-glory	2	2	-	-	1	1	-	2	-	-
Bitterweed	1	1	-	-	1	-	-	1	-	-
Field bindweed	1	1	-	-	-	1	-	1	-	-
Crabgrass	2	2	-	-	2	-	-	2	-	-
Ironweed	1	1	-	-	1	-	-	-	1	-
Joepyeweed	1	1	-	-	1	-	-	-	1	-
Velvetgrass	1	1	-	-	1	-	-	-	1	-
Hardhack spirea	1	1	-	-	1	-	-	-	-	1

[1] The 8 States reporting were: Connecticut, Maine, Maryland, Massachusetts, Pennsylvania, Rhode Island, Vermont, and West Virginia. One State made no report on the infestation trend.

North Central:[2]										
Ragweed	5	-	2	3	-	3	2	2	3	-
Quackgrass	4	-	2	2	-	3	1	2	2	-
Field bindweed	5	2	2	1	2	2	1	3	2	-
Canada-thistle	6	4	1	1	2	2	2	4	2	-
Wild onion and wild garlic	3	1	1	1	1	-	2	2	1	-
Weed bromegrass	5	-	4	1	-	4	1	1	4	-
Kochia	2	1	-	1	-	2	-	-	2	-
Gumweed	2	1	-	1	1	1	-	2	-	-
Yarrow	1	1	-	1	-	-	-	1	-	-
Foxtail	5	1	4	-	-	4	1	4	1	-
Curly dock	7	4	3	-	2	5	-	6	-	1
Crabgrass	3	-	3	-	1	2	-	1	1	1
Ironweed	3	-	3	-	-	2	1	2	1	-

TABLE 38.--Pastures: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959--Continued

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
North Central[2]--Con.										
Cocklebur	3	1	2	-	-	3	-	2	-	1
Pigweed	3	1	2	-	-	3	-	2	1	-
Smartweed	3	1	2	-	1	2	-	3	-	-
Sagebrush	4	2	2	-	1	2	1	3	-	-
Thistle, sow and Russian	4	2	2	-	1	-	3	2	2	-
Sunflower	2	1	1	-	1	1	-	1	1	-
Little barley	3	1	2	-	1	2	-	2	1	-
Goldenrod	2	-	2	-	-	1	1	2	-	-
Buckbrush	4	2	2	-	1	1	2	3	1	-
Pennycress	2	-	2	-	-	2	-	1	1	-
Barnyard grass	2	1	1	-	1	1	-	2	-	-
Chickweed	1	1	-	-	-	1	-	-	1	-
Dodder	1	1	-	-	-	-	1	-	-	1
Lambsquarters	2	1	1	-	-	2	-	2	-	-
Wild mustard	1	-	1	-	-	1	-	-	1	-
Buttercup	1	-	1	-	-	-	1	1	-	-
Tripleawn	1	-	1	-	-	1	-	1	-	-
Vervain	3	2	1	-	2	-	1	2	1	-
Yucca	3	2	1	-	1	1	1	3	-	-
Cactus	3	2	1	-	-	2	1	3	-	-
Mullein	1	-	1	-	-	-	1	-	1	-
Snow-on-the-mountain	1	-	1	-	-	-	1	1	-	-
Oxeye daisey	1	-	1	-	-	-	1	1	-	-
Alyssum	1	-	1	-	-	-	1	-	1	-
Leafy spurge	2	1	1	-	-	1	1	-	2	-
Wild carrot	1	-	1	-	-	1	-	-	1	-
Nutsedge	1	1	-	-	-	1	-	1	-	-
Bitterweed	1	1	-	-	1	-	-	1	-	-
Henbit	1	1	-	-	-	1	-	-	1	-
Johnsongrass	1	1	-	-	1	-	-	-	1	-
Oakbrush	1	1	-	-	-	-	1	1	-	-
Milkweed	1	1	-	-	1	-	-	1	-	-
White cockle	1	1	-	-	1	-	-	-	1	-
Aster	1	1	-	-	1	-	-	1	-	-
Rocky Mountain Bee plant	1	1	-	-	-	1	-	1	-	-
St. Johnswort	1	1	-	-	-	1	-	-	1	-
Southern:[3]										
Wild onion and wild garlic	9	-	5	4	-	4	5	1	7	-
Bitterweed	10	4	2	4	3	3	4	5	2	2
Curly dock	9	3	5	1	3	5	1	3	5	-
Broomsedge	4	1	2	1	1	1	2	2	2	-
Crabgrass	5	-	4	1	1	2	2	1	3	-
Bermudagrass	4	2	1	1	2	1	1	2	1	-
Foxtail	4	2	1	1	2	2	-	3	1	-
Oakbrush	3	2	-	1	2	-	1	2	1	-
Woody plants	1	-	-	1	-	-	1	-	1	-
Cherokee rose	1	-	-	1	-	-	1	-	1	-
Henbit	5	1	4	-	2	3	-	3	1	-
Chickweed	4	1	3	-	2	2	-	1	2	-
Wild mustard	4	1	3	-	3	1	-	1	2	1
Dogfennel	4	-	3	1	1	1	2	-	3	-
Weed bromegrass	4	2	2	-	3	1	-	1	2	1
Pigweed	7	5	2	-	5	1	1	4	1	1
Nutsedge	4	2	2	-	2	2	-	-	3	-
Johnsongrass	2	-	2	-	-	2	-	1	1	-
Annual morning-glory	2	-	2	-	1	1	-	2	-	-
Ragweed	5	3	2	-	3	2	-	3	1	1
Smartweed	4	2	2	-	2	2	-	1	2	1

[2] The 8 States reporting were: Iowa, Kansas, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. One State made no report on the infestation trend.

TABLE 38.--Pastures: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959--Continued

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Southern[3]--Con.										
Dodder	3	2	1	-	2	1	-	1	1	1
Goldenrod	1	-	1	-	-	1	-	-	1	-
Juniper	1	-	1	-	-	1	-	-	1	-
Lambsquarters	4	3	1	-	3	1	-	3	1	-
Quackgrass	2	1	1	-	1	1	-	-	1	-
Canada-thistle	2	1	1	-	1	1	-	1	1	-
Bullthistle	2	1	1	-	-	2	-	-	2	-
Common mullein	1	-	1	-	-	1	-	-	1	-
Buttercup	2	1	1	-	1	1	-	-	2	-
Ironweed	2	1	1	-	1	1	-	1	1	-
Sheep sorrel	3	2	1	-	2	1	-	1	2	-
Horsenettle, Carolina-	3	1	2	-	-	3	-	-	2	-
Fleabane	1	-	1	-	1	-	-	1	-	-
Alder and other hardwoods	1	-	1	-	-	1	-	1	-	-
Wild verbena	1	-	1	-	-	1	-	1	-	-
Plantain	2	1	1	-	1	1	-	1	1	-
Poorjoe	1	-	1	-	1	-	-	-	-	1
Sandbur	1	-	1	-	-	1	-	1	-	-
Pepperweed	1	-	1	-	1	-	-	1	-	-
Chicory	1	-	1	-	-	1	-	1	-	-
Cocklebur	5	5	-	-	5	-	-	3	-	-
Purslane	2	2	-	-	2	-	-	2	-	-
Wild barley	2	2	-	-	1	1	-	-	2	-
Field bindweed	1	1	-	-	-	1	-	1	-	-
Yankeeweed	1	1	-	-	1	-	-	-	1	-
Nimblewill	1	1	-	-	1	-	-	-	1	-
Stickweed	1	1	-	-	-	-	1	1	-	-
Spotted knapweed	1	1	-	-	1	-	-	-	1	-
Trumpetvine	1	1	-	-	1	-	-	-	-	-
Oxeye daisey	1	1	-	-	1	-	-	1	-	-
Whitetop	1	1	-	-	-	1	-	1	-	-
Knawel	1	1	-	-	1	-	-	-	-	-
Ryegrass	1	1	-	-	1	-	-	-	-	-
Coral berry	1	1	-	-	-	1	-	1	-	-
Horseweed	1	1	-	-	1	-	-	1	-	-
Hawkweed	1	1	-	-	-	1	-	1	-	-
Brambles	1	1	-	-	-	1	-	1	-	-
Western:[4]										
Curly dock	6	3	2	1	2	3	1	3	3	-
Canada-thistle	4	-	3	1	-	3	1	-	4	-
Smartweed	1	-	-	1	-	-	1	-	1	-
Sagebrush	1	-	-	1	-	-	1	-	1	-
Wild mustard	1	-	-	1	-	-	1	1	-	-
Tansy ragwort	1	-	-	1	-	-	1	-	1	-
Buttercup	1	-	-	1	-	-	1	-	1	-
Tussocks	1	-	-	1	-	-	1	-	1	-
Field bindweed	4	-	4	-	2	2	-	1	3	-
Ragweed	3	1	2	-	1	1	1	1	2	-
Quackgrass	3	-	3	-	-	3	-	-	3	-
Foxtail	2	-	2	-	1	1	-	-	2	-
Cocklebur	2	-	2	-	-	2	-	2	-	-
Weed bromegrass	2	-	2	-	-	2	-	1	1	-
Bermudagrass	2	1	1	-	-	2	-	1	1	-
Barnyard grass	1	-	1	-	-	1	-	1	-	-
Goosegrass	1	-	1	-	-	1	-	1	-	-
Johnsongrass	1	-	1	-	1	-	-	1	-	-
Lambsquarters	1	-	1	-	-	1	-	1	-	-
Pigweed	2	1	1	-	1	1	-	2	-	-

[3] The 10 States reporting were: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, North Carolina, South Carolina, Tennessee, and Virginia. One State made no report on the infestation trend.

TABLE 38.--Pastures: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959--Continued

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Western[4]--Con.										
Wild onion and wild garlic	1	-	1	-	-	1	-	-	1	-
Wild barley	2	-	1	1	-	1	1	1	1	-
Milkweed	2	-	2	-	-	2	-	1	1	-
Dodder	2	1	1	-	-	2	-	-	2	-

[4] The 6 States reporting were: Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming. Reports from some States were for hay in combination with pasture.

TABLE 38, A.--Irrigated Pastures: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Western:[1]										
Quackgrass	2	-	2	-	1	1	-	2	-	-
Cocklebur	2	1	1	-	1	1	-	2	-	-
Barnyard grass	1	-	1	-	-	-	1	1	-	-
Canada-thistle	1	-	1	-	-	1	-	-	1	-
Foxtail	1	-	1	-	-	1	-	-	1	-
Weed bromegrass	1	-	1	-	1	-	-	-	1	-
Wild mustard	1	-	1	-	1	-	-	1	-	-
Bullthistle	1	-	1	-	-	1	-	-	1	-
Curly dock	1	1	-	-	1	-	-	1	-	-
Goosegrass	1	1	-	-	1	-	-	1	-	-

[1] The 2 States reporting were: Colorado and Montana.

VIII. RANGELAND

Brush species infest an estimated 320 million acres of grazing land in the United States. This includes 70 million acres of mesquite, 76 million acres of juniper, and 96 million acres of sagebrush. In addition there are vast areas of rangeland infested with many nonwoody weeds, including downy brome, bitterweed, halogeton, and medusahead. Herbicides have demonstrated their usefulness for hastening desirable plant succession or altering the direction of successional trends so that increased grazing and land conservation can be accomplished.

Thirteen States reported more than 2 million acres of rangeland sprayed with post-emergence herbicides in 1959 at a cost of over $6 million (tables 1 and 39). The average cost per acre of post-emergence spraying was $3.07 per acre. Sixty-three percent of the acreage was treated by custom operators.

Six States reported good results in controlling rangeland weeds with herbicides, 6 fair, and 1 poor. Ten States reported that the usage of herbicides was increasing, while 2 indicated a stationary condition. Of 11 States indicating a conspicuous need for better herbicides, 3 indicated the need was urgent; an additional 2 States reported little need.

Only seven western States reported on specific weed problems in rangelands (table 40). The most important weed species reported on western rangeland were sagebrush, weed bromegrass, halogeton, juniper, Russian thistle, medusahead, larkspur, Canada-thistle, Yellow starthistle, St. Johnswort, and tansy ragwort.

TABLE 39.--Rangeland: Estimated extent and cost of chemical weed control, and States reporting effectiveness, usage trend, and need for better control methods, United States, 1959

State and region	Acreage treated		Average cost per acre[1]		Acreage treated by--		Effectiveness of herbicides		Herbicide usage trend[2]	Need for better herbicides
	Pre-emergence	Post-emergence	Pre-emergence	Post-emergence	Farmers	Custom operators	Pre-emergence	Post-emergence		
	1,000 acres	1,000 acres	Dollars	Dollars	Pct.	Pct.				
Illinois Indiana Iowa Kansas----------	-	270	-	2.50	5	95	-	Fair	Up	Urgent
Michigan Minnesota Missouri Nebraska--------	-	100	-	2.00	40	60	-	Good	Up	Some
North Dakota Ohio South Dakota Wisconsin										
North Central--		370	-	2.45	14	86	-	1-Good 1-Fair	2-Up	1-Urgent 1-Some
Alabama Arkansas----------	-	20	-	8.00	25	75	-	Fair	Up	Some
Florida Georgia Kentucky Louisiana Mississippi North Carolina---	-	10	-	-	-	-	-	Poor	-	Some
Oklahoma South Carolina Tennessee Texas----------	-	1,250	-	3.00	50	50	-	Good	Up	Urgent
Virginia										
Southern		1,280	-	3.08	50	50	-	1-Good 1-Fair 1-Poor	2-Up	1-Urgent 2-Some
Arizona----------	-	1	-	3.50	100	0	-	Fair	Up	Some
California										
Colorado---------	-	100	-	3.50	20	80	-	Fair	Up	Some
Idaho------------	-	50	-	2.50	20	80	-	Good	Up	Some
Montana----------	-	100	-	1.50	10	90	-	Fair	Sta.	Some
Nevada-----------	-	25	-	2.00	10	90	-	Good	Up	Urgent
New Mexico										
Oregon-----------	-	25	-	3.00	25	75	-	Good	Up	Little
Utah-------------	-	10	-	2.00	90	10	-	Fair	Sta.	Some
Washington										
Wyoming----------	-	50	-	3.50	5	95	-	Good	Up	Little
Western--------	-	361	-	2.63	17	83	-	4-Good 4-Fair	6-Up 2-Sta.	1-Urgent 5-Some 2-Little
UNITED STATES--		2,011	-	3.07	37	63	-	6-Good 6-Fair 1-Poor	10-Up 2-Sta.	3-Urgent 8-Some 2-Little

[1] Represents cost of herbicide custom applications and/or cost of farmer-applied herbicides.
[2] "Sta." refers to a report of stationary.

TABLE 40.--Rangeland: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959

Weeds by region	States reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Western:[1]										
Sagebrush	5	-	3	2	-	3	2	3	2	-
Weed bromegrass	5	-	3	2	-	4	1	2	3	-
Halogeton	2	-	-	2	-	2	-	2	-	-
Juniper	2	-	1	1	-	1	1	2	-	-
Russian thistle	2	-	1	1	-	2	-	-	2	-
Medusahead	2	-	1	1	1	-	1	-	2	-
Larkspur	2	-	2	-	-	2	-	-	2	-
Canada-thistle	1	-	1	-	-	-	1	-	1	-
Foxtail	1	-	1	-	-	1	-	-	1	-
Oakbrush	1	-	1	-	-	1	-	1	-	-
Wild onion and wild garlic	1	-	1	-	1	-	-	1	-	-
Yellow starthistle	1	-	1	-	-	-	1	-	1	-
St. Johnswort	1	-	1	-	-	-	1	-	1	-
Tansy ragwort	1	-	1	-	-	-	1	-	1	-
Greasewood	1	-	1	-	-	1	-	1	-	-
Milkvetch	1	-	1	-	-	1	-	1	-	-
Locoweed	1	-	1	-	-	1	-	1	-	-
Deathcamas	1	-	1	-	-	1	-	1	-	-
Lupine	1	-	1	-	-	1	-	1	-	-
Sandbur	1	-	1	-	-	1	-	-	1	-
Yellow toadflax	1	-	1	-	-	1	-	-	1	-
Willow	1	-	1	-	-	1	-	-	1	-
Curly dock	1	1	-	-	1	-	-	1	-	-
Diffuse knapweed	1	1	-	-	-	1	-	-	1	-
Spotted knapweed	1	1	-	-	-	1	-	-	1	-
Woody aster	1	1	-	-	-	1	-	1	-	-

[1] The 7 States reporting were: Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming.

IX. TIMBERSTAND IMPROVEMENT

In table 41 are shown brush species that present problems in the production of pine for pulp as reported from North Carolina. Five species of woody plants, two perennial vines, and one herbaceous weed are listed.

TABLE 41.--Pine for Pulp: North Carolina reporting of degree of infestation, extent of damage, and infestation trend of specified weeds, 1959

Weeds by region	State reporting	Degree of infestation			Extent of damage			Infestation trend[1]		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Southern:[1]										
Johnsongrass	1	-	1	-	-	1	-	-	-	-
Sweetgum	1	-	1	-	-	1	-	-	-	-
Hickory	1	-	1	-	-	1	-	-	-	-
Maple	1	-	1	-	-	1	-	-	-	-
Honeysuckle	1	-	1	-	-	1	-	-	-	-
Oak	1	-	1	-	-	1	-	-	-	-
Kudzu	1	1	-	-	-	1	-	-	-	-
Locust	1	1	-	-	1	-	-	-	-	-

[1] Infestation trend was not reported.

X. NONCROP LAND

Noncrop land includes ditchbanks; fencerows; feedlots; rights-of-way for highways, railroads, and utility lines; areas around buildings; industrial and defense installations; and water-covered areas such as farm ponds, reservoirs, and earth tanks. Most of these areas are subject to serious weed infestations. According to the 1950 Agricultural Census, there were 25,787,455 acres of irrigated land in the United States, 138,967 miles of canals and ditches, 155,484 miles of open drainage ditches, and 7,812 miles of levees and dikes serving 102,688,331 acres of drained land. The mileages of open ditches by major regions were 89,880 in 6 north-central States, 34,032 in 5 south-central States, and 10,896 in 6 southeastern States. Approximately 89 percent of the irrigated land was shown to be in the 17 Western States. The 1954 Agricultural Census shows that the acreage of irrigated land had increased to 29,552,155, or about 4 million acres in 4 years.

According to the 1954 Agricultural Census there were 1,768,060 artificial farm ponds, reservoirs, and earth tanks in the United States. These were distributed rather uniformly throughout the country with the largest numbers in the Greater Mississippi Valley.

Weed growth in fencerows and in rights-of-way for highways and railroads is a serious problem for agriculture. These areas constitute narrow bands of land through largely agricultural areas where seeds from uncontrolled weeds on the fencerows and rights-of-way provide an extremely troublesome source of weed infestations on adjoining farmlands.

There are an estimated 3 million miles or more of rural highways in the United States. More than 250,000 miles of rural roads are primary State and Federal highways with broad rights-of-way, involving a need for vegetation control on about $2\frac{1}{2}$ million acres. The county and township roads with narrower rights-of-way aggregate many more millions of acres of land that requires maintenance for control of weeds and brush. The new Federal Highway program calling for 41,000 miles of superhighways will have 250- to 300-foot rights-of-way involving approximately 410,000 acres of new land not covered by pavement. This land will require vegetation establishment and control of weeds.

The questionnaires returned from 27 States reported chemical treatment in 1959 on 27,200 acres of noncrop land by pre-emergence application of soil sterilant herbicides (3 States) at a cost of $2,596,200, and on 1,943,500 acres by post-emergence application (27 States) at a cost of $17,-141,700 (tables 1 and 42). Cost per acre averaged $8.82 for post-emergence treatments and $95.45 for pre-emergence applications of soil sterilants. Thirty percent of this work was done by farmers and other land owners and 70 percent by custom operators.

Use of herbicides on noncrop land appeared most prevalent in Idaho and in the North Central States. Good results were reported by one-third of these States and fair results by the other two-thirds. In the several regions, most States reported an upward trend in usage of herbicides for weed control on noncrop land. Of 24 States reporting the need for better herbicides on noncrop land, 7 considered the need urgent and 15 moderate.

Reports from Vermont, Wisconsin, Missouri, North Dakota, and South Dakota (table 43) indicated that a wide variety of herbaceous and woody species occur as weeds on noncrop land, with infestation and damage, however, seldom heavy. The trend of infestation is reported as up to some extent in the North Central States, especially so for sow and Russian thistle and leafy spurge.

TABLE 42.--Noncrop Land: Estimated extent and cost of chemical weed control, and States reporting effectiveness, usage trend, and need for better control methods, United States, 1959

State and region	Acreage treated		Average cost per acre[1]		Acreage treated by--		Effectiveness of herbicides		Herbicide usage trend[2]	Need for better herbicides
	Pre-emergence	Post-emergence	Pre-emergence	Post-emergence	Farmers	Custom operators	Pre-emergence	Post-emergence		
	1,000 acres	1,000 acres	Dollars	Dollars	Pct.	Pct.				
Connecticut										
Delaware										
Maine										
Maryland										
Massachusetts	-	5	-	5.00	10	90	-	Good	Up	Some
New Hampshire										
New Jersey										
New York										
Pennsylvania	-	6	-	25.00	95	5	-	Fair	Up	Some
Rhode Island										
Vermont										
West Virginia	-	2.5	-	7.00	25	75	-	Good	Up	Some
Northeastern		13.5	-	14.25	50	50	-	2-Good 1-Fair	3-Up	3-Some
Illinois										
Indiana										
Iowa	25	25	-	20.00	90	10	-	Good	Up	Little
Kansas	-	15	-	3.00	10	90	-	Fair	Up	-
Michigan	-	200	-	10.00	5	95	-	Good	Up	Urgent
Minnesota	-	140	-	50.00	10	90	-	Fair	Sta.	Urgent
Missouri	-	20	-	2.25	90	10	-	Fair	-	Some
Nebraska	-	600	-	5.00	15	85	-	Good	Up	Some
North Dakota	-	15	-	1.00	90	10	-	Fair	Up	Some
Ohio										
South Dakota	-	200	-	1.60	90	10	-	Fair	Sta.	Some
Wisconsin	-	30	-	3.00	60	40	-	Fair	Up	Some
North Central	25	1,245	-	10.45	31	69	-	3-Good 6-Fair	6-Up 2-Sta.	2-Urgent 5-Some 1-Little
Alabama	-	10	-	5.00	50	50	-	Fair	Up	Some
Arkansas										
Florida	-	50	-	6.00	10	90	-	Fair	Up	Some
Georgia	-	1	-	-	-	-	-	-	-	-
Kentucky	-	40	-	10.00	40	60	-	Fair	Up	Some
Louisiana										
Mississippi										
North Carolina										
Oklahoma										
South Carolina	-	10	-	-	-	-	-	-	-	-
Tennessee	-	10	-	50.00	10	90	-	Good	Up	Some
Texas	-	48	-	10.00	90	10	-	Good	Up	Urgent
Virginia	-	1	-	15.00	95	5	-	Good	Up	Some
Southern		170	-	10.26	45	55	-	3-Good 3-Fair	6-Up	1-Urgent 5-Some
Arizona	-	1	-	80.00	0	100	-	Fair	Up	Little
California										
Colorado	-	5	-	6.00	60	40	-	Fair	Up	Some
Idaho	-	500	-	4.00	20	80	-	Fair	Up	Some
Montana	-	2	-	10.00	90	10	-	Fair	Up	Urgent
Nevada										
New Mexico	-	2	-	20.00	100	0	-	Fair	Up	Urgent
Oregon										
Utah	0.2	2	5.00	4.00	50	50	Fair	Fair	Up	Urgent
Washington										
Wyoming	2.0	4	100.00	10.00	75	25	Good	Fair	Up	Urgent
Western	2.2	515	95.45	4.29	22	78	1-Good 1-Fair	7-Fair	7-Up	4-Urgent 2-Some 1-Little
UNITED STATES	27.2	1,943.5	95.45	8.82	30	70	1-Good 1-Fair	8-Good 17-Fair	22-Up 2-Sta.	7-Urgent 15-Some 2-Little

[1] Represents cost of herbicide custom applications and/or cost of farmer-applied herbicides.
[2] "Sta." refers to a report of stationary.

TABLE 43.--Noncrop Land: Number of States reporting degree of infestation, extent of damage, and infestation trend of specified weeds, United States, 1959

Weeds by region	State reporting	Degree of infestation			Extent of damage			Infestation trend		
		Slight	Moderate	Heavy	Slight	Moderate	Heavy	Static	Up	Down
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Northeastern:[1]										
Quackgrass	1	-	1	-	1	-	-	1	-	-
Poison-ivy	1	-	1	-	-	1	-	-	1	-
Bedstraw	1	-	1	-	-	1	-	-	1	-
Wild grape	1	-	1	-	-	1	-	-	1	-
Honeysuckle	1	-	1	-	-	1	-	-	1	-
Hazelbrush	1	-	1	-	-	1	-	-	1	-
Juniper	1	1	-	-	1	-	-	-	-	1
Cattail	1	1	-	-	1	-	-	-	-	1
Hardhack spirea	1	1	-	-	1	-	-	-	-	1
North Central:[2]										
Oakbrush	1	-	-	1	-	-	1	1	-	-
Canada-thistle	3	1	2	-	2	-	-	3	-	-
Foxtail	2	-	2	-	-	1	1	1	1	-
Ragweed	2	-	2	-	-	2	-	2	-	-
Weed bromegrass	2	-	2	-	-	2	-	-	1	1
Kochia	2	-	2	-	-	2	-	1	-	1
Leafy spurge	2	1	1	-	-	1	-	-	2	-
Alyssum	1	-	1	-	-	-	-	-	1	-
Goldenrod	1	-	1	-	-	1	-	1	-	-
Aster	1	-	1	-	-	1	-	-	-	1
Sunflower	2	1	1	-	2	-	-	2	-	-
Thistle, sow and Russian-	3	2	1	-	2	-	-	-	3	-
Smartweed	3	2	1	-	3	-	-	3	-	-
Quackgrass	2	1	1	-	-	2	-	1	1	-
Curly dock	3	2	1	-	2	-	-	3	-	-
Field bindweed	4	3	1	-	3	-	-	2	1	1
Bitterweed	1	-	1	-	-	1	-	1	-	-
Bermudagrass	1	1	-	-	1	-	-	1	-	-
Barnyardgrass	1	1	-	-	1	-	-	1	-	-
Cocklebur	1	1	-	-	1	-	-	1	-	-
Johnsongrass	1	1	-	-	1	-	-	1	-	-
Buckbrush	1	1	-	-	1	-	-	1	-	-
Little barley	1	1	-	-	1	-	-	1	-	-
St. Johnswort	1	1	-	-	-	-	-	-	1	-
Gumweed	1	1	-	-	1	-	-	1	-	-

[1] The State reporting was Vermont.

[2] The 4 States reporting were: Missouri, North Dakota, South Dakota, and Wisconsin. One State made no report on the extent of damage.

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